Trois essais de la politique de distribution de dividendes

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Chapter 1: INTRODUCTION

"Our goal is to increase enterprise value. Which would you rather have us be? A company with our stock price, and $40 billion in the bank? Or a company with our stock price and no cash in the bank?" - Steve Jobs replied when he was asked about Apple's dividend policy. Under this philosophy, the world's largest technology company did not pay dividend from 1996 to 2011. Apple's dividend philosophy is mainly consistent with the residual theory of dividend policy stated as follows: Firms' operations and investment opportunities are financed from two sources of funds: internal funds (i.e. retained earnings) and external funds (i.e. debt and new equity). Managers who try to maximize shareholder wealth prefer retention of earnings to dividend payment due to significant transaction costs of external financing. Therefore, firms only pay dividends as a residual after financing all available investment opportunities (Higgins, 1972). After Tim Cook succeeded Jobs to be the CEO, Apple started to pay dividends in 2012. Despite Cook's statement "We can still maintain a war chest for strategic opportunities and have plenty of cash to run our business" (dividends are also considered as residuals), to some extent this dividend payment was interpreted that Cook "actually meets with and listens to investors and shareholders" (Paczkowski, 2012). Apple's dividend philosophy is mainly consistent with the residual theory of dividend policy stated as follows: Firms' operations and investment opportunities are financed from two sources of funds: internal funds (i.e. retained earnings) and external funds (i.e. debt and new equity). Managers who try to maximize shareholder wealth prefer retention of earnings to dividend payment since investments due to significant transaction costs of external financing. Therefore, firms only pay dividends as a residual after financing all available investment opportunities (Higgins, 1972). In fact, dividend decisions are much more complicated in many corporations. For example, Figure 1.1 illustrates that Boeing Corporation's dividend per share tends to increase steadily while earning per share and stock price experience many fluctuations over the period from 2000 to 2013. Remarkably, dividend per share exceeds earnings per share in the year of 2002. These findings imply that to some extent dividends are not only residuals and they are not only completely determined by investment opportunities which are measured by stock prices and dividends. The extant literature shows that dividend policy is the outcome of the balance between several factors with potentially conflicting forces reflected in theories of dividend policy.

In addition, a proper understanding of dividend paying policy is essential for other fields of financial economics including capital structure, mergers and acquisitions and capital asset

pricing (Allen & Michaely, 1995). Firstly, firms paying more dividends tend to use external funds including new share issues and debt to finance their investment projects. On the other hand, paying dividends is considered as a means to disgorge abundant cash which is available for managers to invest in negative net present value projects. Therefore, dividend policy is relevant to capital structure theories including transaction cost theory, pecking order theory, residual theory and agency cost theory. Secondly, dividend policy is also related to the probability of takeover. The free cash flow theory suggested by M. C. Jensen (1986) posits that manages do not use retained earnings to maximize shareholder wealth optimally. High dividends are considered as a signal to the markets that firm managers act prudently and the likelihood of takeover is reduced. For example, to defend Scottish and Southern Energy against a possible takeover, its leaders announced a new dividend policy with an increase in the payout ratio by 18% in the year 2007 and an annual growth rate of at least 4% over three following years (Shelley, 2007). Thirdly, dividends have employed commonly to estimate the intrinsic value of shares over more than 40 years since Gordon (1962) initially suggested the dividend growth model. Recently, Eugene F Fama and French (2015) also use the dividend growth mode to explain the impact of profitability and investment on average returns and add these two factors to their three factor model to establish a five factor model. Therefore, understanding dividend policy is useful to asset pricing.

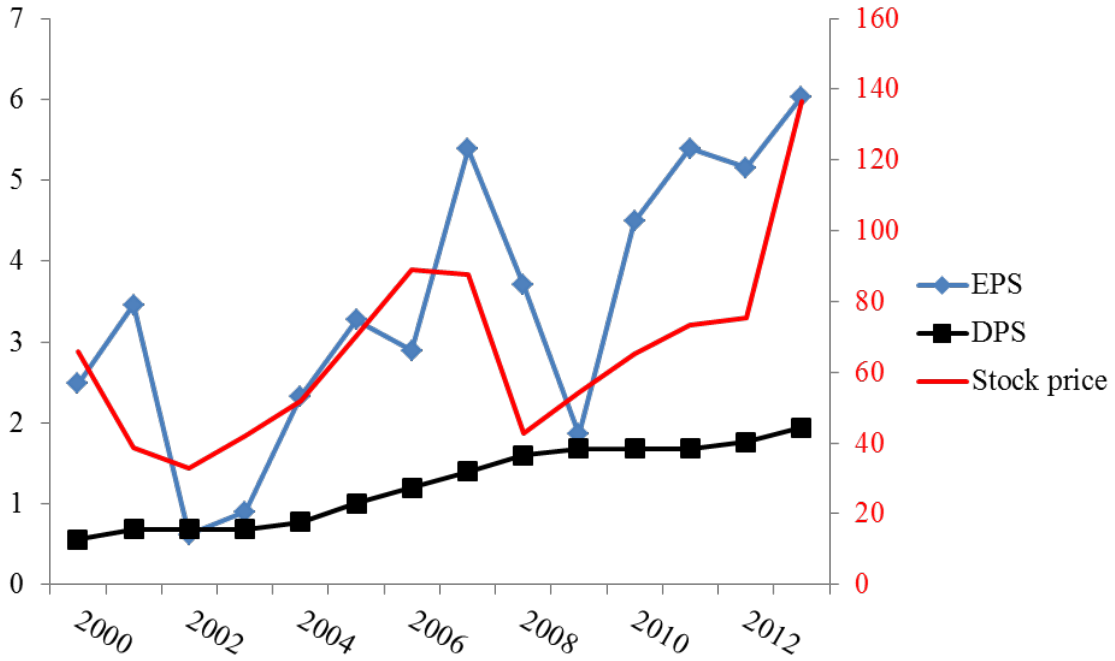

Figure 1.1. Boeing Corporation's earnings per share (EPS), dividend per share (DPS) and stock price

In a classic work, Black (1976) fails to find a reasonable argument to explain why firms distribute cash dividends to their stockholders and consider dividends as a "puzzle". Since then, dividend policy is studied intensely by financial economists and it becomes one of the most debatable topics in corporate finance. Initially, Miller and Modigliani (1961) propose the irrelevance theory of dividend policy assuming that capital markets are perfect and complete. However, later studies find that market is not perfect and complete, hence dividend policy is affected by market frictions including information asymmetry, agency problems, transaction costs, firm maturity, catering incentives and taxes. From these market fictions, many theories of dividend policy are developed to explain the dividend puzzle. The signaling theory argues that there is asymmetric information between corporate managers and outside investors, thus managers use dividends as a signal of corporate expected profitability (Bhattacharya, 1979; Heinkel, 1978; John & Williams, 1985). Agency theory focuses on the conflicts of interest between managers and shareholders and considers dividend payment is a device to mitigate agency problems and reduce agency costs (Easterbrook, 1984; M. C. Jensen, 1986; M. C. Jensen & Meckling, 1976). Transaction cost theory, residual theory and pecking order theory argue that firms prefer financing business projects with retained earnings to external financing; therefore firms do not want to pay dividend when they have available investment opportunities (Higgins, 1972; Stewart C. Myers & Nicholas S. Majluf, 1984; Rozeff, 1982; Weston & Brigham, 1979). Life cycle theory states that mature and established firms pay more dividends due to abundant resources and fewer investment projects whilst young firms with limited resources tend to pay less dividends to finance their investment opportunities (DeAngelo & DeAngelo, 2006; Grullon, Michaely, & Swaminathan, 2002). Catering theory argues that firms pay dividends since they follow investors' demand (M. Baker & Wurgler, 2004b). Tax clientele theory explains dividend policy by the difference between tax rates imposed on capital gains and dividends. The favorable treatment of capital gains to dividends makes firms minimize dividends to maximize their shareholders' wealth (Litzenberger & Ramaswamy, 1979). In addition, the change in stock price on the ex-dividend day is also an anomaly. Many studies find that the stock price drop on the day stocks go ex-dividend is lower than dividend amount while it is hypothesized to be equal to dividend amount under the irrelevance theory of dividends. This anomaly is commonly explained by three groups of factors including taxation (Elton & Gruber, 1970), transaction costs (Kalay, 1982a) and market microstructure (Bali & Hite, 1998; Dubofsky, 1992; Frank & Jagannathan, 1998). Moreover, there has recently been a new trend of international corporate governance research focusing dividend policy across legal regimes. Dividend policy is examined with a pair of opposite models including the outcome

model based on agency costs of equity and the substitute model based on agency costs of debt (Brockman & Unlu, 2009; La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 2000). The former predicts that firms pay dividends as the outcome of the pressure from shareholders. By contrast, the latter predicts that firms pay dividends as the substitute for the weak protection of creditors since they want to earn a good reputation on fair treatment of creditors and meet creditors' demand to restrict dividends under private credit contracts. This PhD dissertation provides new evidence of the above-mentioned dividend policy theories with three separate essays as follows:

The first essay investigates dividend policy in Vietnamese stock market with a two-step approach. This study chooses Vietnamese stock market to examine dividend policy due to three following reasons: (1) It is a newly established stock market in which the regulations and investors' experience to control agency problems are likely incomplete, hence this is a good environment to investigate the agency theory; (2) With short booming and crashing periods, there are rapid changes in transaction costs of raising external funds and the need to use dividends as signals to outside investors in the market. Therefore, testing the transaction cost theory and the signaling theory of dividends is more convenient; (3) State-controlled firms account for a large percentage in listed firms, this is an opportunity to examine dividend policy under the impact of state control which is relevant to "double principal-agent problem" (Gugler, 2003) and the demand of more cash to finance other financially constrained state-owned enterprises or public projects (D. Chen, Jian, & Xu, 2009). Moreover, we argue that dividend policy is not just a simple decision of how much firms should distribute their earnings in form of cash. Dividend policy is a complex decision making process including two steps, namely the decision to pay or not to pay and the decision of dividend payouts. Besides, from econometric perspective, selection bias arises when OLS regression is used for the full sample of non-payers and payers or the subsample of payers since dividends are continuous to the right of zero. Therefore, this study examines dividend policy in Vietnamese stock market with Heckman's two-step regression approach which fixes the selection bias. Research findings show that dividend payment decision is determined by firm characteristics including profitability, investment opportunities, firm size, maturity, stock liquidity, insider ownership and state control. In addition, dividend levels measured by dividend payout ratio and dividend yield are explained by investment opportunities and agency problem. These findings show the following implications in Vietnamese stock market: (1) investors are expropriated more in firms with higher insider ownership; (2) Investors tend to receive smaller dividends paid as a signal of expected profitability when information asymmetry is lower; (3) investors in state-controlled

firms are more likely to receive dividends than those in non-state-controlled firms. Besides, they are less likely to gain dividends when firms have higher investment opportunities, larger size and higher maturity.

The second essay provides new evidence of dividend capture on the ex-dividend day despite much debatable evidence of this anomaly. The extant literature shows that the ex-dividend day anomaly of stock price can be explained by three groups of factors including taxation, transaction costs and market microstructure. Tax clientele theory argues that an investor is indifferent to selling his stocks before or after the ex-dividend day if the benefits from these two activities are equal; therefore, the tax treatment of capital gains to dividends leads to different values of the ex-day price drop to dividend ratio (Elton & Gruber, 1970). However, Kalay (1982a) propose the short-term trading theory with an argument that marginal investors on the ex-day are tax-indifferent arbitragers, the gap between price drop and dividend amount is caused by transaction costs (e.g. transaction fees, brokerage fees or commissions paid to brokerage firms or other intermediaries). If the expected price drop is greater than the dividend amount by more than transaction costs, investors tend to short-sell their stocks before the ex-day and then buy them back to obtain a profit. By contrast, if the expected price drop is smaller than dividend amount by more than transaction costs, investors are more likely to buy stocks before the ex-day and sell them latter to gain a profit. As a result, the difference between the price drop and dividend per share is explained by transaction costs. In addition, market microstructure theories argue that the characteristics of institutional environment including limit order adjustment (Dubofsky, 1992, 1997), bid-ask bounce (Frank & Jagannathan, 1998) and price discreteness (Bali & Hite, 1998) are explanations of this anomaly. This study posits that Vietnamese stock market is a promising laboratory to investigate the ex-day behavior of stock price due to its special features: Firstly, the market uses periodic call auction mechanism for determining both opening and closing prices and there is no market maker. Secondly, tick size is much smaller than dividend amount. These imply that market micro-structure theories based on ask-bid spread and tick size are not applicable explanations. Thirdly, unlike many markets' taxation of capital gains and dividends, there is no considerably preferential treatment of capital gains to dividends. Finally, short-selling is prohibited. After comparing the observed values of price drop to dividend ratio and their expected values under the impact of tax policy suggested by Elton and Gruber (1970), we find that tax treatment fails to explain the anomaly in the research framework. As a result, dividend capture trading is applicable. The research findings show that abnormal returns are significantly positive and negative in the pre and the post ex-

dividend day period respectively; in addition, abnormal trading volume are positive before and after stocks go ex-dividend. Moreover, OLS regression analysis finds consistent evidence that dividend yield and ex-day abnormal trading volume ex-day are negatively and positively related to ex-day abnormal return respectively. These results imply that investors in Vietnamese stock market is indifferent to the difference in tax treatment of capital gains to dividends, they try to capture dividends if they find profit opportunities. Therefore, investors buy stocks on the cum-dividend day and sell them on the ex-dividend to exploit profit opportunities created by dividend payment.

The third essay examines the effects of shareholder rights and creditor rights on dividend policy when agency costs of shareholders and creditors tend to increase. La Porta et al. (2000) initially propose the two opposite models of dividend policy based on agency costs of equity (i.e. the outcome model and the substitute model) and find supporting evidence of the outcome model based on agency costs of shareholders. Brockman and Unlu (2009) extend this line of research for agency costs of creditors and find that the substitute model based on agency costs of creditors is empirically supported. This study uses the global financial crisis as an exogenous shock to test the two agency models of dividends due to the following reasons: Firstly, under the impact of a financial crisis, there is lower investment return in the market, hence insiders experience lower marginal costs of expropriation of minority shareholders and agency costs of equity tend to increase. Secondly, firms experiencing more external financial constraints are less willing and able to build up a reputation of fair treatment of creditors. On the other hands, firms are more likely to fail to meet creditors' demand of dividend constraints due to their willingness of earning a reputation of good business. Therefore, agency costs of debt also tend to increase. These increases in both types of agency costs are a good opportunity to examine the outcome model based on agency costs of equity and the substitute model based on agency costs of debt. After firm characteristics including profitability, cash holdings, firm growth, debt ratio, asset tangibility, firm size and maturity are controlled, we find that both the outcome model based on agency costs of equity and the substitute model based on agency costs of debt are less effective in the post-crisis period than in the pre-crisis period. Furthermore, the decline in the effect of creditor rights (shareholder rights) on both the probability of paying dividends and dividend payouts is larger in the group of stronger shareholder (creditor) protection. These findings imply that when both types of agency costs: (1) both shareholders and creditors are more expropriated; (2) the increase in the expropriation of creditors (shareholders) is higher if shareholders (creditors) are protected strongly by law.

This PhD dissertation is organized in six chapters. Chapter 1 is the introduction of research background and summary of the three essays on dividend policy. Chapter 2 is the literature review presenting theories of dividend policy, theories of stock price behavior on the ex-dividend day and arguments on the effect of shareholder rights and creditor rights on dividend policy. Chapter 3 is the essay on a two-step approach to investigate dividend policy in Vietnamese stock market. Chapter 4 is the essay on new evidence of dividend capture on the ex-dividend day in Vietnamese stock market. Chapter 5 is the essay on the changes in the effects of legal protection of shareholders and creditors on dividend policy across countries before and after the global financial crisis. Chapter 6 is the conclusion.

Chapter 2: LITERATURE REVIEW

As one of the most important contents in corporate finance, dividend policy is studied intensely by financial economists with different theoretical and empirical studies. This chapter includes three main sections presenting theories of dividend policy, theories of stock price behavior on the ex-dividend day and arguments on the effect of shareholder rights and creditor rights on dividend policy and corporate governance in a financial crisis.

2.1. Theories of dividend policy

Miller and Modigliani (1961) posit that under perfect and complete capital markets, market value of firms' equity is irrelevant to its dividend policy. They propose a model in which market value is determined by firms' decisions on optimal investments. Net payouts (i.e. dividends and equity issues) or share repurchases are a residual after firms using their earnings for investments. Levels of dividends can take any value since the change in shares outstanding caused by share issues can offset them. Therefore, market value is not affected by dividends at all; it is only affected by investment decisions. However, in practice, capital markets are not perfect and complete due to information asymmetry, agency problems, transaction costs, firm maturity, catering incentives and taxes, hence dividend policy is a complicated decision-making process. These market fictions are reflected in several theories of dividend policy such as signaling theory, agency theory, transaction cost theory, residual theory, pecking order theory, life cycle theory, catering theory and tax clientele theory.

2.1.1. Signaling theory

Main arguments

The signaling theory of dividends policy is developed in the late 1970s with the key argument that there is asymmetric information between firms' managers and outside investors. Managers can have more information about firms' expected profitability which investors cannot observe. Therefore, dividend policy is employed as a signal of the firm's forecasted profitability.

Heinkel (1978) initially proposes an asymmetric information model stating that firm value is a function of cash dividend. The model is based on two assumptions: (1) The number of firms with high expected profitability is limited and (2) The volatility of firm value is negatively related to the expected profitability. Under the asymmetric information framework, cash dividends imply firms' expected cash flows; hence, firms with higher dividends are considered

to have better performance than those with lower ones. Investors use these signals to make their investment decisions and value firms' stocks.

Bhattacharya (1979) develops this line of research with a two-period model where there is no agency problem between managers and shareholders. At the beginning of the first period, managers decide to invest in a business opportunity and they have full information on the expected profitability which is unknown to outside investors. At this moment, managers also promise to pay investors a certain amount of dividend. At the end of the first period, if the payoff created by the investment is less than the committed dividend amount, firms need external funds for the second period and incur transaction costs. Therefore, managers can signal investors in stock markets on the quality of the business opportunity by paying large dividend amount for the first period and the firm can avoid transaction costs arising from external financing. From this model, Bhattacharya (1979) posit that firms decide to pay cash dividends as a signal to outsiders regardless of the tax disadvantage for dividend.

John and Williams (1985) and Miller and Rock (1985) support the dividend signaling theory; however, they explain the theory with different arguments. John and Williams (1985) claim that information revealed by corporate audits about future performance is unreliable since they fail to illustrate firms' future profitable investment opportunities completely. Given imperfect information on firms' expected profitability, firms can communicate perfectly with outside investors only by paying cash dividends or issuing new shares. When private information about firms' future profits is favorable, a dilution of proportional ownership is not beneficial to current stockholders. As a result, insiders acting for existing stockholders' benefit may choose to distribute dividends instead of selling new shares. Outside investors are convinced by these signals and offer higher prices for firms' stocks. In this case, although there is a higher tax rate on dividends than on capital gains, tax disadvantages for dividends are compensated by increases in stock prices while insiders maintain their fractional ownership. Using a two period model, Miller and Rock (1985) posit that cash dividends contain information about expected profits; however, they communicate with outsiders indirectly and need not reflect intentional policy of firms' managers to convey the information about future performance. At the beginning of the first period, managers invest in a business project of which expected profitability are not observed by outside investors. At the end of this period, the project generates earnings which are allocated for both dividend payment and investment for the second period. Investors cannot have information on both earnings and future investment. At the end of the second period, the project generates earnings again. Therefore, dividend

declarations only supply investors with the missing information about corporations' current profits. Then, these profits are used to forecast future earnings.

Ambarish, John, and Williams (1987) criticize the signaling equilibrium model of John and Williams (1985) and develop an efficient model presenting the relationship between dividend payment, investment, and new share issuances. They argue that in the previous models an efficient signaling equilibrium maximizes stockholders' wealth among all possible respective equilibria because firms have different marginal benefits of avoiding ownership dilution. The new model states that managers can communicate with outsiders through two types of combination: The first is dividend payment and disclosed investment; the second is dividend payment and new stock issuance. Analyzing this model, Ambarish et al. (1987) generate two main properties. The former is that for firms distributing cash dividends there is a positive relationship between dividend declaration and stock price if there is fixed investment. The latter is if firms pay fixed dividends, the effect of declaration of investment or net new shares is negative for those with superior information arising mainly from assets in place and positive for those with superior information chiefly from investment opportunities.

Furthermore, Bar-Yosef and Huffman (1986) develop an incentive-signaling model with the assumption that firms' owners have managerial reward-penalty scheme to ensure accurate signals from managers' announcements. They claim that under the optimal equilibrium of dividend policy the dividend payout is an increasing function of future cash flow.

Stulz (1990) examines financing policies of firms with atomistic stockholders and claims that the predictability of dividends about expected cash flows is higher for underinvesting and overinvesting firms than for those with maximized value. This argument is supported by the empirical study of Koch and Shenoy (1999). In consistence with Stulz's argument, their findings show a distinct U-shaped association between Tobin's q and the predictability of information conveyed by dividends.

In addition, Rozeff (1982) and Eades (1982) propose cash dividends as a signal of the uncertainty of expected cash flows with the implication that firms with higher variability of cash flows have more difficulties in financing future business activities. Bar-Yosef and Huffman (1986) argue that considerable variations of dividend payout ratios across industries are explained by differences of industry risk exposure. They develop a model stating that the dividend payout ratio is a function of the volatility of cash flow and find that there is a negative relationship between the dividend payout ratio and the risk level of cash flows.

While previous studies examine the impact of unsystematic risk of cash flows on dividend policy, Kale and Noe (1990) suggest a model where dividends are consider as a signal of both systematic and unsystematic uncertainty of firm cash flows. This model supports the dividend signaling theory with the unsystematic risk and implies that cash dividend levels have a negative association with the market risk of cash flows.

Empirical studies

There are several empirical studies with various research methods supporting the dividend signaling theory in different countries. H. Kent Baker, Farrelly, and Edelman (1985) use mail questionnaires addressed to chief financial officers of 562 corporations listed in NYSE during the period from February to April 1983 to collect information about dividend policy. Their findings show that respondents seem to agree on the signaling mechanism of dividend and investors use dividend declaration to value firms' securities. H. Kent Baker and Powell (1999), H. Kent Baker and Powell (2000) survey listed firms in NYSE in 1997 with various dividend hypotheses and compare the results with those of the survey in 1983. They conclude that current and forecasted earnings are one in two the most important determinants of firms' dividend policy and they have highly similar explanatory power in the two studies conducted in 1983 and 1997. In addition, H. Kent Baker, Powell, and Veit (2001) conduct a survey with a sample of 188 managers of firms listed in NASDAQ and find that the factors which are significant with NYSE-listed firms are also significant to NASDAQ-listed firms. Similar findings with the survey method are released in Australia (Partington, 1989), Norway (H. Kent Baker, Mukherjee, & Paskelian, 2006), France (Albouy, Bah, Bonnet, & Thévenin, 2012), Canada (H. K. Baker, Saadi, Dutta, & Gandhi, 2007), and 16 European countries (Bancel, Bhattacharyya, Mittoo, & Baker, 2009).

Moreover, the dividend signaling mechanism is found significant in many empirical studies with statistical methods. Examining the impact of dividend policy on shareholders' wealth with a sample of 168 firms paying dividends for the first time or after 10-year hiatus in USA, Asquith and Mullins Jr (1983) assert that dividends are more attractive than other accounting data in transmitting information with two main characteristics. Firstly, dividends are a simple and comprehensive signal for managers to convey firms' current and expected performance. Secondly, dividend announcements are supported by cash; thus, dividends are clearly more visible than other announcements. Healy and Palepu (1988) use a sample of 131 US firms including 37 firms those are removed from Asquith and Mullins' sample to test the information contents of dividend policy changes about future prospects. Their findings are consistent with

the signaling explanation of dividends. Adjaoud (1984), Ahmed and Javid (2009); Raaballe and Hedensted (2008) find supporting empirical evidence for the signaling hypothesis in Canada, Denmark and Pakistan respectively.

However, there are empirical studies stating that managers do not communicate with the market through dividends. Watts (1973) investigates the hypothesis that current and past cash dividends are stronger estimates of future earnings than current and past earnings with a sample of 310 U.S firms and concludes that the information conveyed by dividends is insignificant. Gonedes (1978) argues that dividend signals do not represent any special information of managers about forecasted distributions of earnings. Moreover, DeAngelo, DeAngelo, and Skinner (1996) also find no supporting evidence for the dividend signaling hypothesis with two explanations. Firstly, managers tend to overestimate future earnings because they are overoptimistic. Secondly, managers tend to make limited cash commitments when they raise dividends.

Furthermore, Benartzi, Michaely, and Thaler (1997) find that an increase in dividends leads to a positive abnormal and a decrease in dividends causes an negative abnormal return at the time of dividend announcement. However, examining returns of firms changing dividends for the next three years, they also discover that there are insignificant abnormal returns for firms cutting dividends while firms with dividend increases have significant positive excess abnormal returns. These results indicate that even if firms convey signals to the market, these signals are not about firms expected performance and the market fail to perceive them. Besides, Grullon et al. (2002) find that an increase in dividends leads to a decrease in future profits and Brav, Graham, Harvey, and Michaely (2005) use survey results to reject the hypothesis on information content of dividends. In addition, there are empirical findings showing no supporting evidence for the dividend signaling mechanism in others countries. Daunfeldt, Selander, & Wikström's study (2009) based on the data of Swedish listed companies from 1991 to 1995 reveals that the cash dividend yield is negatively related to the market to book value. They explain that companies with more favorable prospects should save cash to finance future business investments and exploit growth prospects. However, their findings are inconsistent with the signaling hypothesis. J. Chen and Dhiensiri (2009) analyzing determinants of dividend policies with a sample of 76 firms listed in New Zealand Stock Exchange between 1991 and 1999 show no evidence to support the signaling theory. Recently, Al Shabibi and Ramesh (2011) use a sample of 120 non-financial listed corporations in United Kingdom to test dividend theories including signaling one. The result shows a rather strong association between

corporations' cash dividends and business risk. They claim that managers of firms with higher level of risk tend to communicate stability to outside investors; hence, insiders decide to distribute dividends.

2.1.2. Agency theory

Main arguments

Agency theory is initially developed by Berle and Means (1932) to describe the impact of the gap between ownership and control on modern companies. Agency relationship is defined as an agreement under which agents perform some service on behalf of principals who delegate decision-making authority agents (M. C. Jensen & Meckling, 1976). Agency problems arise from the information asymmetry between agents and principals. Although agents are not owners of resources, they can manage and control resources. Therefore, agents tend to make business decisions on their own interest instead of maximizing principals' wealth. According to M. C. Jensen and Meckling (1976), there are two types of agency problems: (1) The conflict of interest between mangers and shareholders; (2) The conflict of interest between shareholders and bondholders.

The extant literature shows that the conflict of interest between managers and shareholders leads to agency costs borne by the two parties. According to M. C. Jensen and Meckling (1976) agency costs include monitoring costs, bonding costs and residual loss. Firstly, monitoring costs are incurred by principals to reduce managers' activities which benefit themselves instead of shareholders. Secondly, bonding costs are incurred by managers to guarantee that they will not conduct behaviors which harm shareholders' welfare. Finally, residual loss represents the divergence between managers' decisions and those maximizing shareholders' wealth. Easterbrook (1984) argues that in addition to monitoring costs, agency costs arise from the risk aversion problem. Shareholders can eliminate non-systematic risk with diversified portfolios and expect managers to make business decisions as risk preferrers at the expense of bondholders. However, managers' personal interest is significantly connected to their firms. When firms have lower profitability or go bankrupt, managers will lose their jobs and relevant benefits. Therefore, managers tend to be risk-averse and conduct low-risk projects which have lower returns than riskier ones. Furthermore, M. C. Jensen (1986); Rozeff (1982) posit that excessive funds which are available to managers are another source of agency costs. If firms' cash flow exceeds that required to finance profitable business projects, corporate managers are motivated to invest in negative net present value projects.

In the presence of agency problems between mangers and firm owners, dividend payment is a device to mitigate agency problems and reduce agency costs. According to Easterbrook (1984), both monitoring costs and costs arising from managers' risk-aversion become less serious with firms paying cash dividend to shareholders. When firms issues new shares or debt securities to finance business opportunities, their affairs are monitored by investment banks, outside investors and other monitoring institutions in the market. In addition, issuing firms can adjust leverage level so that shareholders cannot exploit bondholders' welfare. M. C. Jensen (1986); Rozeff (1982) propose the free cash flow hypothesis which states that firms pay cash dividend is to decrease free cash flows of which managers can take advantage to fund unprofitable projects. Furthermore, Gugler (2003) argues that there is a "double principal-agent problem" in state-controlled firms whose ultimate owners are citizens. Managers are delegated to manage state-controlled firms by elected politicians who may not have active monitoring activities. Thus, state-owned firms experiencing more serious agency problems tend to pay more dividends to decrease agency costs. In contrast, family-controlled firms have lower dividend payout ratios because they have less need to control managers.

In addition, the conflict of interest between shareholders and bondholders is also relevant to dividend policy. M. C. Jensen and Meckling (1976); Myers (1977) posit that in some cases, shareholders try to expropriate bondholders in the form of excessive dividends. Firms pay more dividends by reducing funds allocated for business investments or raising debt to finance their dividend payment. These actions transfer wealth from bondholders to shareholders but they are not anticipated by bondholders. Since dividend payment increases the agency costs of debt, both equity and debt claimants may have an agreement on limiting dividends. Most bond covenants are structured to constrain both investment-financed and debt-financed dividends.

Empirical studies

Empirical studies yield mixed results in the impact of free cash flows on dividend policy. Holder, Langrehr, and Hexter (1998) initially use free cash flow to investigate the impact of agency problems on dividend decisions. With the sample of 477 US listed firms during the period from 1983 to 1990, they find strong supporting evidence for the free cash flow hypothesis which implies that firms with more free cash flows have higher dividend payout ratios to reduce agency conflicts. Adjaoud and Ben-Amar (2010) also find that free cash flows are positively correlated with dividend payment in Canadian stock market. Recently, the positive relationship between free cash flows and dividend policy is found in Ghana (Amidu & Abor, 2006) and Thailand (Thanatawee, 2011). However, examining effects of agency cost of

free cash flows on dividend policy with a sample of 26 firms listed in Indonesia from 1994 to 2007, Utami and Inanga (2011) find no significant evidence to support the free cash flow hypothesis. Al-Najjar and Hussainey (2009) show that levels of free cash flows are negatively related to dividend distribution but this relationship is not significant in UK stock market.

Moreover, several empirical studies investigating the relationship between corporate governance as a proxy of agency problems and dividend decisions show various findings. Rozeff (1982) argues that corporate governance is a device to reduce agency cost; therefore, firms with stronger corporate governance do not need to use dividend payment to mitigate agency cost. Using a sample of 1000 listed firms in US from 1974 to 1980 with two variables including insider ownership and dispersion of ownership to measure agency problems between managers and shareholders, Rozeff (1982) finds that the former and the latter are negatively and positively associated with dividend payout ratios respectively. In line with Rozeff's results, Holder et al. (1998) find that both insider ownership and concentration of ownership have significantly negative effect on dividend payout policy in US market. Alli, Khan, and Ramirez (1993) and Al-Malkawi (2007) test the agency cost theory of dividends with 150 listed firms in US and 160 firms listed in Jordan respectively. Their research results show that insider ownership has negative relationship with dividend decisions but there is no significant relationship between spread of ownership and dividend policy. However, using governance data of The Institutional Shareholder Services with 4,771 firm-year observations of dividend paying firms in US stock markets from 2001 to 2004, Pornsit Jiraporn (2006) find that strength of corporate governance is positively related to dividend policy. In addition, Bebczuk (2005); Kowalewski, Stetsyuk, and Talavera (2007) employ Transparency and Disclosure Index as a proxy for agency conflicts and conclude that there is a positive association between Transparency and Disclosure Index and dividend payout policy in Argentina and Poland respectively. This implies that firms with stronger corporate governance pay more cash dividends. Moreover, testing the impact of corporate governance on dividend policy in Canadian market from 2002 to 2012 with 714 firm-year observations, Adjaoud and Ben-Amar (2010) find that Corporate Governance Score is positively related to dividend payout ratio. Al Shabibi and Ramesh (2011) hypothesize that board size, board independence and audit reputation have positive effect on dividend per share when they conduct an empirical research on determinants of dividend policy in UK. Nevertheless, their results show supporting evidence for board independence and no significant evidence for board size and audit reputation. The positive relationship between board independence and dividends are found significant in US

(Kaplan & Reishus, 1990; Schellenger, Wood, & Tashakori, 1989) but insignificant in Australia (Cotter & Silvester, 2003). Besides, investigating the relationship between ownership structure and dividend policy of Austrian firms over the period from 1991 to 1999, Gugler (2003) concludes that state ownership is positively related to dividends. This result is supported by studies in China (Wei, Zhang, & Xiao, 2004) and Jordan (Al-Malkawi, 2007).

Besides, Ang, Cole, and Lin (2000) use a zero agency-cost firm as a base case to measure both absolute and relative agency costs of equity under various ownership and management structures. With a sample of 1,708 small firms from the data of the Federal Reserve Board released its National Survey of Small Business Finances in 1997, they find that agency costs of equity are higher with managers who are outsiders than insider managers, negatively related to the managers' ownership, positively related to the number of non-manager shareholders and lower with greater bank monitoring.

Furthermore, the agency costs of debt are tested empirically in many studies and the results are also mixed. Handjinicolaou and Kalay (1984) investigate the impact of dividend change information on both bond prices and equity prices. Using a research sample with 255 straight bonds randomly selected from the NYSE and 1,967 dividend announcements over the period 1975 – 1976, they find that bond prices fall significantly with dividend decrease announcements and remain significantly constant with dividend increase announcements. These findings are not consistent with the shareholder - bondholder agency hypothesis and support the information content of dividends. Kalay (1982a) examines the constraints of dividends under the impact of bond covenants between shareholders and bondholders and also find no supporting evidence for the wealth transfer hypothesis. With the data of debt indentures of 150 firms randomly selected from Moody's Industrial Mutual, their results show that firms hold considerably more cash or cash equivalents than the lowest cash level which is in accordance with the bond covenants. In addition, Nash, Netter, and Poulsen (2003) investigate the costs and benefits of bond covenants for bonds issued in 1989 and 1996 and find that firms with high firm growth tend to preserve flexibility in their future financing options by ignoring dividend or debt issuance constraints in their bond contracts. These also imply that contractual relations between shareholders and bondholders represent the specific needs of the both parties. However, Anderson, Mansi, and Reeb (2003) find supporting evidence for the shareholder - bondholder agency hypothesis when investigating the relationship between founding family ownership structure and the agency cost of debt. Their research results show that founding family ownership is common in publicly traded and large firms and these characteristics help firms incur both statistically and

economically lower cost of debt financing. This is consistent with the wealth transfer hypothesis that these firms have incentive structures leading less severe agency conflicts between shareholders and creditors.

2.1.3. Transaction cost theory, residual theory and pecking order theory

Main arguments

Three theories of dividend including transaction cost theory, residual theory and pecking order theory describe firms' decisions on investment and financing activities which affect dividend policy. Firstly, according to transaction cost theory, transaction costs are incurred by firms and investors when firms have to resort to raising external funds due to dividend payment (Manos, 2001). Dhrymes and Kurz (1967); Meyer and Kuh (1957) posit that financing business activities with internal funds are cheaper than issuing new securities. If transaction costs are significant, firms tend to retain more earnings to finance investment opportunities. Firms paying more dividends have to incur higher transaction costs of external financing (Higgins, 1972; Rozeff, 1982). Secondly, residual theory asserts that firms only pay dividends after financing all available investment opportunities (Weston & Brigham, 1979). According to Higgins (1972), dividends should be considered as a residual because investments maximize owners' wealth in an environment of differential taxes and significant transaction costs. This indicates that firms with abundant positive net present value projects have high intention rates (Ghosh & Woolridge, 1989). Thirdly, pecking order theory also postulates that firms prefer to finance dividends and investment by internal equity to external funds. Even if external financing is necessary, firms prefer debt to new share issues. Donaldson (1961) explains these preferences by significant flotation costs. However, Stewart C. Myers and Nicholas S. Majluf (1984) argue that the net benefits of raising funds from debt in terms of tax shield and financial distress may exceed flotation costs. Firms prefer internal equity since they want to maximize the wealth of shareholders. Stewart C. Myers and Nicolas S. Majluf (1984) propose a model describing managers' decisions on investment and financing activities when they have superior information about their firms' current investment and future business opportunities. They recognize two properties relating to cash dividends: On the one hand, firms should not distribute dividends if they have to recover cash through issuing new shares or other risky securities although dividends are signals to the financial market. On the other hand, limiting dividends is one way to create financial slack and cash can be saved as tradable securities or reserve power.

Empirical studies

In prior studies investment opportunities, firm leverage and firm size are commonly used to test the above-mentioned theories of dividend. There are several studies supporting the negative relationship between investment opportunities and dividend decisions. Higgins (1972) uses cross-section tests for the data including from 117 to 123 US firms in the years of 1961, 1963 and 1965 to investigate the impact of investment on dividends and finds that firms with higher investment opportunities pay less dividends. In addition, with the sample of 1000 US firms listed over the period from 1974 to 1981, Rozeff's research (1982) shows supporting evidence for the three theories of dividend. This is consistent with several findings from studies conducted in US (Alli et al., 1993; Chang & Rhee, 1990; Holder et al., 1998; P. Jiraporn, Kim, & Kim, 2011), Canada (H. K. Baker et al., 2007) and Ghana (Amidu & Abor, 2006). In addition, investigate the effects of firm characteristics and propensity to pay on disappearing dividends in the U.S. market from 1978 to 1999 Eugene F. Fama and French (2001) find that this phenomenon is partly due to firm characteristics. Firms which have never paid dividends experience the best growth opportunities with much higher asset growth and market-to-book ratio. Denis and Osobov (2008) examine determinants of dividend policy with a sample of firms listed in US, Canada, UK, Germany, France, and Japan over the period from 1994 to 2002 and find consistent results for investment opportunities. Moreover, Thanatawee (2011) tests the effect of investment requirements on dividend policy of 416 non-financial firms between 2002 and 2008 in Thai market with two variables for investment opportunities, namely total assets growth and market to book value ratio. The findings indicate that the latter is negatively associated with dividend policy while the former has insignificant correlation with dividend policy. Nevertheless, there are researches illustrating no significant relationship between investment and dividend decisions. Al-Najjar and Hussainey (2009); Al Shabibi and Ramesh (2011) find no evidence to support the three theories in UK stock markets. Similar findings are found in Canada (Adjaoud & Ben-Amar, 2010), Indonesia (Utami & Inanga, 2011) and Jordan (Al-Malkawi, 2007).

Moreover, transaction cost theory, residual theory and pecking order theory argue that firms prefer internal financing with earnings to external financing which consists of debt and new share issues. Besides, debt and dividend payment are means to reduce agency costs between mangers and shareholders (Al-Najjar & Hussainey, 2009). These arguments imply that firms with higher leverage have lower dividend payout ratios. Empirical evidence on the negative relationship between debt level and dividends are found in both developed and emerging

markets (Aivazian, Booth, & Cleary, 2003; Al-Malkawi, 2007; G. R. Jensen, Solberg, & Zorn, 1992; Kowalewski et al., 2007; Thanatawee, 2011). However, Chang and Rhee (1990); Utami and Inanga (2011) and P. Jiraporn et al. (2011) prove the opposite empirical result which describes the positive impact of firm leverage on dividend payment. This positive impact can be explained by signaling theory which indicates that financing dividends by debt is a signal for high levels of future earnings (Al-Najjar & Hussainey, 2009). On the other hand, there are researches illustrating no significant correlation between debt ratio and dividend payout ratio (Adjaoud & Ben-Amar, 2010; Al-Najjar & Hussainey, 2009; Al Shabibi & Ramesh, 2011; Bebczuk, 2005).

According to Chang and Rhee (1990); Holder et al. (1998), large and well-established firms have easier access to capital markets. This implies that large-sized firms can raise funds to finance business activities from the public with more flexibility and lower costs while small firms mainly depend on debts to finance both investment and dividends. Hence, larger firms tend to pay higher dividends to shareholders. Empirical evidence on the positive relationship between firm size and dividend policy are showed in many stock markets in US (Chang & Rhee, 1990), UK (Al-Najjar & Hussainey, 2009; Al Shabibi & Ramesh, 2011), Canada (Adjaoud & Ben-Amar, 2010), Poland (Kowalewski et al., 2007), Thailand (Thanatawee, 2011), Jordan (Al-Malkawi, 2007), and Bangladesh (Mollah, 2001). However, Aivazian et al. (2003) find little support for the impact of firm size on dividends when investigating dividend policies in US and emerging markets including Korea, India, Malaysia, Thailand, Zimbabwe, Jordan, Pakistan and Turkey. Bebczuk (2005) and Utami and Inanga (2011) assert that there is no significant association between firm size and dividend payment in Argentina and Indonesia respectively.

2.1.4. Life cycle theory

Main arguments

Eugene F. Fama and French (2001) examining determinants of dividend disappearing in the US market and find an interesting phenomenon that firms with high current profitability and low firm growth are more likely to pay dividends while firms with low profitability high growth tend to retain more earnings. Then, Grullon et al. (2002) investigate 7,642 dividend change announcements in US stock markets from 1967 to1993 find two remarkable results. Firstly, after an increase in dividend there is a decrease instead of an increase in firm profitability. This rejects the argument of signaling theory. Secondly, dividend-increasing firms experience decreases in systematic risk which leads to a decline in cost of capital. Grullon et al. (2002)

assert that both theory of dividend smoothing proposed by Lintner (1956) and free cash flow hypothesis suggested by M. C. Jensen (1986) cannot explain the two findings completely and develop an alternate theory. They explain these phenomena with a life cycle argument as follows: Firms have more profitable projects in the growth phase; therefore, they have high levels of economic profits, capital expenditure, growth in retained earnings and low levels of free cash flows. If firms' growth is maintained, there are more competitors entering the industry. Hence, existing firms have less positive net present value projects, capital expenditures and more free cash flows. Moreover, due to fewer growth options, assets become more important to determine firm value and systematic risk is reduced.

The life cycle theory of dividends posit that mature and established firms tend to pay more dividends due to fewer investment opportunities and abundant resources while young firms with limited resources tend to retain more earnings to finance abundant investment projects. Life cycle explanations are implicitly or explicitly based on the trade-off between the costs (e.g., flotation costs) and the benefits of dividend payment (e.g., reducing agency costs of free cash flow). When firms are more mature, more profits are accumulated and investment opportunities decline. Accordingly, the benefits of dividend distribution tend to exceed the costs of dividend payment and firms pay more dividends (DeAngelo & DeAngelo, 2006; Grullon et al., 2002).

Empirical studies

DeAngelo, DeAngelo, and Stulz (2006) use the earned/contributed capital mix which are measured by retained earnings to total equity or retained earnings to total assets as a proxy for firm maturity to test life cycle hypothesis in US markets from 1973 to 2002. Their findings show that firms with higher earned/contributed capital mix have higher probability to pay dividends. The positive relationship between maturity of firm and the probability of dividend payment is a supporting evidence for life cycle hypothesis. Furthermore, Denis and Osobov (2008) investigate the predictability of firm maturity on the propensity to pay dividend in six developed countries, namely US, Canada, UK, Germany, France, and Japan over the period from 1989 to 2002. Their results illustrate that firms with greater proportion of retained earnings to total equity are more likely to pay dividends. Brockman and Unlu (2009) also find that retained earnings scaled by the book value of assets ratio is positively related to both the likelihood of paying dividends and dividend payout ratio across 52 countries with 120,507 firm-year observations.

2.1.5. Catering theory

Main arguments

Catering theory of dividends is initially developed by M. Baker and Wurgler (2004b). The essence of this theory is that managers follow investor demand. They propose a view of dividend policy based on loosening the assumption of market efficiency in the dividend irrelevance proposition. They argue that the demand of investors stocks paying dividends varies over time; therefore, the relative prices of dividend payers and non-payers fluctuate. Consequently, managers tend to satisfy investor demand for dividends by initiating dividends when investors give a relatively high stock price on dividend-paying stocks and omitting dividends when investors prefer non-paying stocks.

Li and Lie (2006) criticize the study of M. Baker and Wurgler (2004b) on its explanation ability. They argue that Baker and Wurgler's model only explains dividend initiations or omissions, it cannot explain dividend changes. There empirical model is decrete with only two groups of firms including dividend payers and non-payers. In practice, managers make decisions related to changes in dividend payouts which are more informative than dividend initiations or omissions. Therefore, they extend the caterting theory with continous dividend levels and suggest that firms should be classified only by their decisions of paying or not paying but also their dividend levels. Accordingly, catering implies that mangers change dividend policy to satisfy investor demand.

Empirical studies

M. Baker and Wurgler (2004b) proposed a discrete model to test the catering theory of dividends. They investigate the effect of the current dividend premium on the rates of firms initiating and omitting dividends in the US market over the period from 1963 to 2000. Dividend premium is defined as the difference between the current share prices of paying firms and non-paying firms. Using four different stock price-based measures for the dividend premium, they find that the total initiation rate has a significantly positive relationship with all of their proxies. Furthermore, they find that the rate of omission has a significantly negative relationship with two out of four dividend premium proxies. However, they conclude that catering effects are the most natural explanations after reviewing alternative hypotheses.

In addition, M. Baker and Wurgler (2004a) examine the relationship between the propensity of paying dividends and catering incentives. Firstly, they use Fama and French’s methodology (2001) to recognize four distinct trends in the propensity of paying dividends from 1963 to

2000 and find that there are two appearances and two disappearances over the period. Secondly, they report that each of these trends is related to a corresponding change in catering incentives when dividend premium variable is measured in line with M. Baker and Wurgler (2004b).

Li and Lie (2006) argue that the empirical study conducted by M. Baker and Wurgler (2004b) contains two drawbacks. Firstly, their discrete model cannot explain the catering effects on dividend levels. Secondly, their empirical findings show no supporting evidence for the catering theory with a statistically insignificant relationship between dividend announcement returns and dividend premium. Therefore, they extend the dividend catering model with continuous dividend levels. Using a research sample of 20,779 dividend announcements (1,815 decreases and 18,964 increases) over the period from 1963 to 2000, they find that both the likelihood of decreases and increases in dividends and the amount of the dividend changes are associated with the dividend premium. Particularly, the likelihood of dividend decreases is higher for the group of low dividend premium and the probability of dividend increases is higher for the group of high dividend premium. In addition, dividends decrease with higher rates if the dividend premium is low and increase with higher rates if the dividend premium is high. They also find supporting evidence for the catering theory with a significantly negative relationship between the announcement returns arising from dividend decreases and the dividend premium and a significantly positive relationship between the announcement returns arising from dividends increases and the dividend premium.

Although the catering theory of dividends is supported empirically in the US market, the evidence of dividend catering is mixed across countries. Stephen P. Ferris, Nilanjan Sen, and Ho Pei Yui (2006) examine whether the dividend disappearing is the United Kingdom which has a comparable capital market to that of the United States in terms of maturity and sophistication. They find that the number of payers also falls from 75.9% to 54.5% over the period from 1988 through 2002. After firm size and profitability are controlled, their results show a decline in the propensity of paying dividends over the sub-period 1998 - 2002. Interestingly, a shift in catering incentives is considered most likely explanations for the changes in dividend policy in the UK market from 1998 to 2002. However, von Eije and Megginson (2008) investigate cash dividends and share repurchases of firms listed from 1989 to 2005 in the 15 EU members and find that there is no systematic impacts of a country-specific catering variable on dividend policy in EU companies. This implies that catering fail to play an important role in European dividend policy. With a sample of firms listed in six developed markets including US, Canada, UK, Germany, France, and Japan from 1989 to 2002, Denis and

Osobov (2008) also report no supporting evidence for the dividend incentives. They find that unexpected reductions in the paying proportion are determined by newly listed firms which have low proportions of dividend initiations. Moreover, Ferris, Jayaraman, and Sabherwal (2009) attempt a more ambitious research on international catering incentives with a large dataset of 24,298 firm-year observations collected from 23 countries including both common law and civil law systems between 1995 and 2004. They only find supporting evidence of catering incentives for the sub-sample of common law countries but not fot the group of civil law countries. Even when the effect of firm life cycle is controlled, catering incentives remain persistent. They explain that stockholders of firms incorporated in common law countries experience a wider range of rights and protections, thus they are more able to discipline managers who cannot cater to investor demand.

2.1.6. Tax clientele theory

Main arguments

Taxes are another market friction making dividend policy relevant to market value. Tax clientele theory is developed in 1970s with an pioneer after-tax capital assets pricing model proposed by Brennan (1970). This model is extented with the elimination of some assumptions by Litzenberger and Ramaswamy (1979). These two after-tax capital assets pricing models show that after-tax expected returns rely on both dividend yield and systematic risk and the benefits investors obtain from diivdends are not optimal due to tax-related reasons. The income tax rate imposed on dividends is commonly higher than that imposed on long-term capital gains. This favorable treatment of capital gains to dividends makes investors prefer a low dividend payout to a high dividend payout. Therefore, if firms want to maximize their shareholders' wealth, they should minimize their dividends.

Black and Scholes (1974) argue that the effect of taxes is not uniform for all investors since different groups of investors experience different tax treatment of dividends over capital gains. Therefore, investors have various preferences of dividends to retained earnings: Investors for whom dividends are taxed at lower effective brackets than captital gains prefer dividends, investors whose dividends are tax disadvataged tend to prefer retained earnings and for whom taxes on dividends and capital gains are effectively equal are indifferent to them.

Empirical studies

Empirical studies show a mixture of relationship between taxes and dividends. Pettit (1977) investigates the impacts of transaction costs and taxes on individual investors' portfolios with

actual portfolio positions and demographic information and finds supporting evidence of tax clientele effects. The research results show that investors charged with low tax rates and investors with considerable gaps between the tax rates imposed on their ordinary income and capital gains prefer to keep high dividend yield stocks. Litzenberger and Ramaswamy (1979) test the extended after-tax capital assets pricing model for NYSE stocks over the period from January 1936 to December 1977 and find supporting evidence of tax clientele hypothesis. In addition, Poterba and Summers (1984) employ British data to investigate the effects of tax policy on investors' comparative valuation of dividends and capital gain between 1955 and 1981. This research period offers a promising opportunity to test the tax clientele theory since it experiences two radical changes and many minor reforms in dividend tax policy. Using daily data on a limited sample and monthly data on a broad sample, they find empirical evidence of tax clientele hypothesis with a significant impact of taxes on the equilibrium relationship between market return rates and dividend yields.

However, Lewellen, Stanley, Lease, and Schlarbaum (1978) using the same database as Pettit Pettit (1977) show only a weak effect of maginal tax rates on dividend yields of investors' portfolios. In addition, Black and Scholes (1974) applying the best available empirical methods fail to find supporting evidence of the tax clientele theory. Their research findings show that the differences between the expected return rates on high yield common shares and on low yield common shares are not significant both before and after taxes. An investor who is taxable (exempt from taxes) focusing on his portfolio in low (high) yield shares cannot know whether his expected after-tax returns will increase or decrease. Miller and Scholes (1982) continue to test the whether investors for whom the taxes on dividend payments are the heavier than those on long-term capital receive higher risk-adjusted returns with higher dividend yields. Utilizing short-run measures of dividend yield to deduce the dividend tax treatment from differences in return rates of non-paying shares, they find no empirical support for the theory.

There are other studies examining the relationship between tax policy and dividend policy with changes in tax regimes including Tax Reform Act of 1986 in the United States and Canadian Tax Reform. These changes supply natural experiments to test the tax clientele hypothesis. However, they also find mixed results for the effect of taxes on dividend policy (Bolster & Janjigian, 1991; Casey & Dickens, 2000; Means, Charoenwong, & Kang, 1992; Papaioannou & Savarese, 1994; Saadi & Chkir, 2008).

The above-mentioned theories of dividend policy provide a wide range of explanations of corporate dividend decisions in both developed and emerging stock markets. The first essay

posits that Vietnamese stock market is a good environment to investigate of dividend policy. Firstly, in a newly established stock market, legal regulations and shareholders' experience to control expropriation by insiders may be less effective, thus the agency problem tend to be more severe. Secondly, short booming and crashing periods in the market lead to fluctuations in both transaction costs of external financing and the need to use dividends as a signal to outside investors. Thirdly, about 30% listed firms are state-controlled firms which may experience "double principal-agent problem" or tend to pay more cash dividends to finance other state-owned projects. As a result, these characteristics are promising to test agency theory, transaction cost theory and the signaling theory. Moreover, we argue that dividend policy includes two steps: the first is to pay or not to pay; the second is how much should be paid. Therefore, we use the two-step approach to examine dividend policy with Heckman two-step model which can eliminate the problem of selection bias. Due to the availability of information in Vietnamese stock market, we cannot mention the catering theory in this study.

2.2. Theories of stock price behavior on the ex-dividend day

According to Miller and Modigliani (1961), in an ideal environment dividend policy is not significantly related to both firm market value and shareholder wealth. Therefore, stock prices should fall precisely by dividend magnitude on the ex-dividend day. However, many theoretical and empirical studies show that the price drop on the ex-dividend day is not equal to dividend amount due to various reasons including tax clientele effects, short-term trading activities and market microstructure.

2.2.1. Tax clientele theory

Main arguments

Elton and Gruber (1970) initially proposed tax clientele theory stating that ex-day behavior of a firm's common stock should be associated with its marginal stockholders' tax rates. An investor selling his stocks before the ex-day loses the right of receiving dividends. However, if he holds them until they go ex-dividend, he should expect to sell them at lower price due to his dividend retention. This stockholder is indifferent to the time of selling his stocks only if the benefits from two cases are equal. Accordingly, Elton and Gruber (1970) develop the following expression:

$$P_c - t_g(P_c - P_o) = P_e - t_g(P_c - P_o) + D(1 - t_d) \qquad \text{(Eq.2.1)}$$

Rearranging (Eq.2.1) they get

$$\frac{P_c - P_e}{D} = \frac{1 - t_d}{1 - t_g} \qquad \text{(Eq.2.2)}$$

Where P_c is stock price on the last cum-day. P_e is expected stock price on the ex-day. P_o is cum-dividend price at which stocks were purchased. t_d is the marginal tax rate on dividends. t_g is the marginal tax rate on capital gains. D is the magnitude of dividend.

Subject to this analysis, the ratio of price drop to dividend $(P_c - P_e)/D$ always reflects the comparative marginal tax rates on stockholders' dividends and capital gains. If there is favorable tax treatment of capital gains to dividends, the price drop is less than dividend paid and the ratio is smaller than one. Therefore, Elton and Gruber (1970) posit that the relative marginal tax rates can be inferred by studying the stock price drop to dividend ratio on the ex-dividend day. Moreover, they investigate the relationship between relative tax bracket and dividend yield in the U.S. market by sorting the research sample into deciles by dividend yield and calculate the mean of $(P_c - P_e)/D$ for each group. Their findings show that the mean of price drop to dividend ratio is 0.778 and the ratio is be positively related to dividend yield. The former is consistent with the U.S. tax policy and the latter is in consistence with the presence of tax clientele effect which states that investors with low relative tax brackets are more likely to hold low yield stocks.

Jerry (1980) extends the Elton-Gruber analysis with abnormal trading volume around ex-dividend days. He argues that delaying or advancing a transaction due to tax-related reasons is costly. Therefore, high tax bracket investors who want to advance selling their stocks tend sell on the cum-dividend day whist high tax bracket investors who want to postpone a purchase of stocks tend to buy on the first day when stocks go ex-dividend. Based on these arguments, they posit that some positive abnormal trading volume should be observable on the ex-dividend day and the day before while negative abnormal trading volume should appear on other days.

Empirical studies

Using Elton and Gruber's model, Barclay (1987) tests the tax-effect hypothesis by investigating the ex-dividend behavior of stock prices in the US market before the enforcement of the federal income tax over the period from 1900 to 1910. They find that during the pre-tax period, price drops are, on average, equal to the full amount of dividends paid. This is consistent with the tax clientele hypothesis. In addition, Lamdin (1993) study the ex-dividend day behavior of share prices before and after the US Tax Reform Act of 1986 which increase tax rates on capital gains. With the research data collected from 1982 to 1991, they find empirical evidence supporting the traditional view that different tax treatment of dividends over capital gains

significantly affects their valuation. The price drop to dividend ratio on the ex-dividend day, on average, is lower in the post-reform period than the pre-reform period. Moreover, Roni Michaely and Vila (1995) extends Elton and Gruber's analysis by developing a dynamic tax-induced clientele model. They posit that investors with preferential taxation of dividends tend to hold and buy stocks before the ex-day whist investors with tax disadvantages on dividends tend to sell stocks on cum-dividend days and buy them back on the ex-day. As a result, investors trade with each other around the ex-dividend day due to their different valuation of dividends. In this model, dividend yields and tax heterogeneity indicate gains from tax arbitrage trading activities whist risk and transaction costs prevent these activities. In equilibrium, the price drop to dividend ratio is shaped by the average investors' preference for dividends to capital gains, rather than by a single group of investors. Graham, Michaely, and Roberts (2003) take the opportunity of decimalization of price quotations from 1/8s and 1/16s to decimals in the US stock market to test the microstructure hypothesis. However, they find that abnormal stock returns on the ex-dividend day increase in both the 1/16 and decimal pricing periods, relative to the 1/8 period. This implies there is no supporting evidence of the price discreetness effect and transaction costs theory. They show that a May 1997 decrease in the capital gains tax rate can explain the abnormal returns increase as stated by Elton and Gruber (1970).

Furthermore, there are many empirical supports for the tax clientele theory in non-U.S. stock markets. Booth and Johnston (1984) extends this line of research to Canadian stock market where the tax policy of dividends over capital gains are is absolutely different from the tax system in the U.S. stock market. They estimate the price drop ratio for four separate tax periods including 1970-1971, 1972-1976, 1977, and 1978-1980 and find that the price drop ratio on the ex-dividend day is not equal to from zero or one. This implies that taxes have significant effects on investor preferences for dividends over capital gains. Besides, the behavior of the price drop ratio on the ex-dividend day under different tax regimes support the argument that individuals of effectively low dividend tax brackets are marginal traders in the stock market. Moreover, Kato, Kato, Loewenstein, and Loewenstein (1995) argue that investigation of stock price and trading volume behavior around the ex-dividend day in Japan can provide more understandings on the tax clientele effect since the Japanese stock market is different from the U.S. market in terms of tax code (i.e. short-term and long-term trading activities are imposed the same tax rate and there is significant change in tax policy in the tax reform of 1988) and the means of information dissemination. With a comprehensive empirical analysis of the ex-dividend day stock price behavior, they find that prices increase on the ex-dividend day and the effects of

taxes on the ex-day stock price behavior seem to be secondary. Stock returns around the ex-dividend day are dominated by the fiscal year end effect. Milonas, Travlos, Xiao, and Tan (2006) choose the Chinese stock market where cash dividends are either taxable or non-taxable based on their magnitude comparative to the annual interest to examine the ex-dividend day behavior of stock price. After neutralizing potential factors which can affect the stock price behavior, they find that the ex-dividend price drop to dividend ratio of non-taxable stocks is not significantly different from one while that of taxable stocks is significantly less than one. For stocks with high dividend yield, the price adjustment relies on the effective dividend tax rate. These overall findings support the tax clientele hypothesis. Besides, empirical supporting evidence of the tax effect on the ex-day stock behavior is also documented in Finland (Hietala, 1990), Italy (R. Michaely, Michaely, Murgia, & Murgia, 1995), Germany (McDonald, 2001), the Netherlands (Florentsen & Rydqvist, 2002), Sweden (Daunfeldt et al., 2009) and Taiwan (H.-L. Chen, Chow, & Shiu, 2013).

2.2.2. Short-term trading theory

Main arguments

In Elton and Gruber's model, marginal investors are long-term investors. Their decisions of buying or selling are irrelevant to dividends; therefore, transaction costs are considered as fixed costs and fail to affect the equilibrium. However, Kalay (1982a) argues that in the absence of the tax clientele effect (i.e. tax rates on dividends and capital gains are equal), there are investors who are different to the timing of sale and trade due to dividends. In this case, transaction costs become relevant to the price drop to dividend ratio. If the expected price drop on the ex-day exceeds the dividend per share by more than the costs of buying and selling stocks, investors could short-sell their stocks on cum-dividend days and buy them back when they go ex-dividend to make a profit. This can be presented as follows:

$$(1 - t_o)(P_c - P_e - D - \alpha P) > 0 \qquad \text{(Eq.2.3)}$$

Where t_o is tax rate on ordinary income, α is expected transactions costs of a round-trip transaction and $P = (P_c + P_e)/2$

On the other hand, if the expected price drop on the ex-day is less than dividend per share by more than transaction costs, investors tend to buy stocks on cum-dividend days and sell them on ex-dividend days to gain a profit. This can be expressed as follows:

$$(1 - t_o)[D - (P_c - P_e) - \alpha P] > 0 \qquad \text{(Eq.2.4)}$$

According to Kalay (1982a), a profit is realized only if it is not exploited by arbitrage activities. As a result, the condition of non-profit opportunities is presented as follows:

$$| D - (P_c - P_e) | \leq \alpha P \qquad \text{(Eq.2.5)}$$

Rearrange (Eq.2.5) we get

$$1 - \frac{\alpha P}{D} \leq \frac{P_c - P_e}{D} \leq 1 + \frac{\alpha P}{D} \qquad \text{(Eq.2.6)}$$

Accordingly, the non-profit opportunity range of $(P_c - P_e)/D$ is negatively proportional to dividend yield and stockholders' marginal tax rates cannot be estimated from the price drop to dividend ratio. If transaction costs are zero, the value of $(P_c - P_e)/D$ will be limited to unity. Nevertheless, Kalay (1982a) posit that transaction costs are not negligible. When the ratio varies within the allowable range, there is presence of arbitrageur.

Eades, Hess, and Kim (1984) the ex-dividend day behavior of stock price on New York Stock Exchange from July 2nd, 1962 to December 31st, 1980 and find that the preferential treatment of capital gains to dividends cannot explain completely abnormal returns on ex-dividend days. Consequently, one cannot infer marginal tax rates on dividends and capital gains from the ratio of stock price drop to dividend. This is consistent with Kalay's arguments. Moreover, contrary to the tax clientele theory, they show that abnormal returns are present on days other than ex-dividend days.

Empirical studies

Lakonishok and Vermaelen (1986) argue that trading volume around the ex-dividend day also provide information on marginal investors on the ex-day. Their findings show that trading volume increases considerably on days around the ex-dividend day. This increase tends to be stronger for high yield, active stocks and over the period after the launch of negotiable brokerage commissions. In addition, they find that abnormal returns are positive before ex-dividend days and negative after ex-dividend days and abnormal increases in stock prices are positively related to dividend yield. These results are supporting evidence for transaction cost theory.

Karpoff and Walkling (1988) investigating short-term trading before and after ex-dividend days on New York Stock Exchange from 1964 to 1985 find that ex-day returns are impacted by arbitrage trading and positively related to transaction costs. Arbitrageurs are marginal investors in stocks with high dividend yield whilst arbitrage trading is not present with low-yield stocks and before negotiated commissions. Moreover, Karpoff and Walkling (1990) confirm that

dividend capture trading plays an important role in dividend puzzle and the explanation of ex-day returns is more complex than indicated by Elton and Gruber's tax-induced hypothesis. Ex-dividend day returns of stocks with dividend capture reflect arbitrageurs' marginal transaction costs whilst those without dividend capture may reflect long-term investors' marginal tax rates.

Supporting evidence for the short-term trading theory is mainly from the U.S. market. Boyd and Jagannathan (1994) develop an equilibrium model based on three stylized facts: (1) transaction costs are significant; (2) there are different groups of traders (i.e. taxable individuals, tax-favorable dividend capturing traders, and tax-neutral arbitrageurs) with various transactions costs and/or tax brackets and (3) high-yield stocks experience dividend capture. They argue that when the price data includes a mixture of observations of different traders the relationship between dividend yield and the ex-dividend price drop is not linear and find supporting evidence of this prediction. Moreover, after eliminating low dividend observations, they find that the proportion of data points at which short-term trading to capture dividend is appearing tend to increase. Naranjo, Nimalendran, and Ryngaert (2000) reexamine and extend the study of Eades et al. (1984) by focusing on the inter-temporal behavior of stock returns on the ex-day for high-yield stocks which are potentially attractive to corporate dividend capture. They find that find that abnormal ex-day returns are, on average, uniformly negative during the years after the launch of negotiable commission rates and the variation of time in ex-day returns over the negotiable commission rates period is in line with the tax-based dividend capture hypothesis. Returns on ex-days are more negative when the tax advantage to short-term trading is greatest and more positive when transaction costs and risk of dividend capture increase.

Furthermore, Castillo and Jakob (2006) investigate the ex-day behavior of stock prices on the major Chilean exchange and find that the price drop is, on average, equal to only 81.5% dividend amount. With the absence of discreteness, they test the dividend clientele effects with five sub-samples classified by dividend yield but find no significant relationship between the price drop to dividend ratio and dividend yield. In addition, they use regression analysis to investigate the effect of dividend yield on the price drop ratio and the ex-day abnormal return but there is no consistent evidence with the tax hypothesis. This is explained that the dividend payment requirement stipulated by the Chilean Government makes the dividend clientele effect less prevalent. Consequently, they suggest that transactions costs for short-term traders may ultimately be the friction restricting the price adjustment on the ex-dividend day in Chile. Moreover, Dasilas (2009) find that the data collected from the Athens Stock Exchange over the period from 2000 to 2004 is a good laboratory to investigate the reaction of stock prices on the

ex-dividend day due to its special dividend distribution mechanism: (1) dividends are paid annually instead of quarterly or semi-annually; (2) according to corporate laws 2190/1920 and 148/1967, the minimum amount of dividend shall be paid from the taxed corporate profits; (3) dividends are exempt from personal taxes over the research period; (4) commission costs are deregulated and tick size is significantly small and (5) opening stock prices are deducted artificially by the dividend amount on the ex-day. Their results show that stock prices fall less than the dividend amount on the ex-day and the behavior of both abnormal returns and abnormal trading volume around the ex-dividend day support the presence of short-term trading.

2.2.3. Microstructure theories

Main arguments

Dubofsky (1992, 1997) propose the limit order adjustment model to explain ex-dividend day behavior of stock price based on regulations of New York Stock Exchange. If the bid and asked prices are constant during intra-ex-day trading, and market orders on the ex-dividend day have equal likelihood to be a buy order or a sell order filled at with the ask price PA_e and the bid price PB_e on the last cum-dividend day respectively, then the average closing price on the ex-day P_e is calculated as $(PA_e + PB_e)/2$ and the stock's mean return is as follows:

$$\bar{R} = \frac{\frac{PA_e \mid PB_e}{2} + D - P_c}{P_c} \qquad \text{(Eq.2.7)}$$

Where P_c is the mean closing price on the cum-dividend day. Pe is the mean closing price on the ex-dividend day. D is the cash dividend paid per share.

In a perfect capital market, the diffences between PA_e and PB_e and their corresponding cum-dividend levels are precisely equal to the dividend amount; therefore R is equal to zero. Nevertheless, stocks are trade at 1/8 increments but dividend amounts are commonly not multiple increments of eighths. According to Rule 118, all limit buy orders existing on the exchange are compulsorily reduced by the amount of paid dividend. If resulting prices are not equal to a multiple of a tick, prices of limit buy orders will be reduced to the next tick. Meanwhile, limit sell orders are not subject to the price adjustment mechanism. Price adjustment of limit orders leads to less than one price drop to dividend ratio.

Moreover, Frank and Jagannathan (1998) develop microstructure model to explain ex-day puzzle based on the spread between bid price and ask price. Studying behavior of stock price on

ex-days on the Hong Kong stock market which has no taxes on both dividends and capital gains and no market makers until 1993, they find that price drop to dividend ratio is about a half. The mean value of dividend per share is HK $0.12 while that of the price drop on the ex-dividend day is only HK $0.06 per share. To explain this phenomenon they propose an investor behavior model in which there are two types of prices in the stock market including the price for buying (i.e. ask price) and the price for selling (i.e. bid price). In the bid-ask bounce model, rational investors who have decided to purchase stocks would prefer to conduct their behavior on the ex-day instead of on the last cum-day (i.e., they would rather delay their trading activity by a day) due to costs arising from dividend collection. Meanwhile, market makers with lower collection costs tend to purchase stocks before ex-dividend days and resell them on ex-dividend days. Therefore, most trades are conducted at bid prices on cum-dividend days and at ask prices on ex-dividend days. These bid-ask spreads imply that price drops on ex-days are lower than dividend amounts.

Using the data on share prices, dividends, and ex-dividend dates of 351 firms provided by the Pacific Basin Capital Markets Research Center in the period from January 1980 to December 1993, Frank and Jagannathan (1998) find supporting evidence of the bid-ask bounce hypothesis.

In addition, Bali and Hite (1998) argue that stock price behavior on ex-dividend days is determined by price discreteness. Dividends are commonly small; therefore, price discreteness is an important factor to explain observed the reaction of stock price on the ex-dividend day. Frank and Jagannathan (1998) develop a simple model of trading activities around the ex-day with the prediction that the price drop tend to be smaller than the dividend amount but greater than or equal to the difference between the dividend amount and one tick. According to the price discreteness hypothesis, if stock prices are restricted to discrete ticks and dividends are continuous, dividend amounts are always rounded down to ticks next to dividends. This adjustment makes in ex-day price drops less than dividend amounts in most cases. If tick size is larger, price drop ratio will be higher. Using data from American Stock Exchange over the period from July 2nd, 1962 to December 31st, 1994 they find supporting evidence for the price discreteness hypothesis.

Empirical studies

K. Jakob and Ma (2004) conduct direct empirical tests of the price discreteness hypothesis and the limit order adjustment hypothesis with the data from New York Stock Exchange between January 1993 and December 2001. The two models are tested with all three tick size regimes during the research period. Five major findings are reported as follows: (1) For the most

commonly paid dividends, the likelihood that the price drop in the ex-day is the tick above is just equal to the likelihood that the ex-day price drop is the tick below the dividend; (2) Regression results show that the average price drop is different from the tick below the dividend; (3) Under three tick size regulations, the average difference in bid price between the cum-day and the ex-day is larger than the average dividend, which is larger than the average difference in ask price between the cum-day and the ex-day; (4) The opening bid-ask bounce is larger on the ex-day than on the cum-day and (5) There is no significant decrease in the difference between the dividend amount and the average price drop when the tick size is decreased. All of these findings support the price discreteness model and is not consistent with the limit order adjustment model.

Al Yahyaee, Pham, and Walter (2008) examine the ex-dividend reaction of stock prices in Oman stock market which is characterized as follows: (1) Either dividends or capital gains are taxable; (2) stock prices are decimalized; (3) dividends are paid annually; and (4) the data is available to investigate the bid-ask bounce hypothesis. Under this institutional environment, lower than one price drop to dividend ratio is not caused by taxes and price discreteness. In line with prior studies, they find that the stock price drops are less than less than dividend amounts and ex-day returns are significantly positive. However, when they examine the behavior of abnormal trading volume around the ex-day, there is no supporting evidence of the short-term trading hypothesis. Then, they take the market microstructure effect into account and they find that the ex-dividend price drop is not significantly different from the dividend magnitude.

As presented, there are three groups of theories including taxation, transaction costs and market microstructure to explain that ex-dividend day anomaly of stock price. We find that Vietnamese stock market is a good laboratory to examine this anomaly due to its special features: Firstly, both opening and closing prices are determined by periodic call auction mechanism and there is no market maker. Secondly, tick size on which the microstruture theories are based is significantly smaller than dividend magnitude. Thirdly, unlike many markets' tax systems, there is no favorable treatment of capital gains to dividends. Finally, short-selling is prohibited.

2.3. Shareholder rights, creditor rights and dividend policy

Based on the agency problem suggested by M. C. Jensen and Meckling (1976). Later studies develop the agency model in broad terms with two types of interest conflicts: the conflicts among equity claimants and the conflicts between equity and debt claimants (Brockman & Unlu, 2009). Accordingly, there are two types of agency costs, namely agency costs of shareholders and agency costs of creditors. Beside many studies explaining agency costs

corporate dividend decisions at firm level, there are studies investigating the effect of shareholder and creditor rights which are considered as proxies of agency costs on dividend policy across countries with the argument that legal regimes are enormously different in terms of shareholder and creditor protection around the world.

La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) define legal protection as both the legal content and the quality of enforcement. Examining company laws and bankruptcy/reorganization laws of 49 countries, they exhibit that countries in different legal origins including English common law, and French, German and Scandinavian civil law have various levels of shareholder and creditor rights. Countries with English common law origin are the most shareholder-friendly; however, countries with French and German origin are the least shareholder-friendly and countries with Scandinavian origin are somewhere in between the two extremes. Since creditor protection is more complex than shareholder protection due to various kinds of creditors and strategies of handling bankrupt firms but they also find that legal origin matters to many creditor right variables. French civil law countries have the weakest creditor protection. Djankov, McLiesh, and Shleifer (2007) construct a revised measure of legal creditor rights based on La Porta et al. (1998) with minor differences in 129 countries for every year over the period from 1978 to 2003.They find that creditor protection varies systematically across legal families. Particularly, creditor protection is stronger in common law family than in French civil law family, German civil law family has strong creditor rights and French legal origin countries have the weakest creditor protection. These findings are consistent with those of the original creditor index. In addition, they show that is the average creditor rights score tend to remain unchanged over time in all legal families. This implies that creditor rights reflect relatively permanent characteristics of the institutional environment which is deeply rooted in countries' legislative traditions. Moreover, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) criticize that that La Porta et al. (1998) only predict financial outcome on the basis of investor protection measures across countries and fail to explicitly focus on self-dealing defined as the problem of investor expropriation. Therefore, they propose a new measure of shareholder rights representing legal prevention of corporate insiders' expropriation: the anti-self-dealing index. The index measures private enforcement mechanisms including disclosure, approval, and litigation which govern a specific self-dealing activity in accordance with prevailing legal rules of 72 countries in 2003. This theoretically grounded index generally has better predictability than the prior index of anti-director rights in terms of stock market outcomes. Besides, in this study, Djankov et al. (2008) also revise the LLSV original anti-director rights index which is

criticized by many scholars due to its ad hoc nature, coding mistakes and conceptual ambiguity. The revised anti-director index is calculated with more precise definitions of corporate law dimensions based on applicable laws and regulations for publicly traded firms in May 2003 in 72 countries instead of 49 countries. Remarkably, the differences in both the anti-self-dealing index and the revised anti-director index shows across legal families are consistent with those reported by La Porta et al. (1998).

La Porta et al. (2000) argue that controlling shareholders can conduct policies for their own interest and expropriate minority shareholders. Minority shareholders are always victims of expropriation regardless of who insiders are defined, hence they typically prefer dividends. However, the law is one of important remedies to agency problems. Legal regime provides investors specific powers to prevent their investment from insiders' expropriation. Shareholder powers are rights to receive dividends which are equal to those of insiders, to vote on important issues of firms, to sue firms for damages. This legal protection make minority shareholders more confident to implememt their investment strategies. In addition, recognizing the variety of legal protection of shareholders around the world, they La Porta et al. (2000) initially investigate the effect of shareholder rights on dividend policy across countries. In this study, they propose a pair of opposite agency models of dividends, namely the outcome model and the substitute model. The former argue that dividends are paid as an outcome of an effective legal mechanism of shareholder protection. Under this effective mechanism, minority shareholders use their legislative powers to pressure insiders to disgorge cash by voting for directors who pay higher dividends, by selling shares with low dividends to potential hostile raiders or by suing firms which benefit insiders too much. Therefore, stronger minority shareholder protection leads to more dividends paid from corporate earnings. In an alternative view, the latter model argues that dividends are paid as a substitute for shareholder protection by laws. This view is based on firms' demand for external financing, at least occasionally. To raise external funds with favorable conditions firms should earn a reputation of fair treatment of shareholders and one approach to establish a good reputation is paying dividends which are considered as a means to mitigate insiders' expropriation. A reputation for fair treatment of shareholders is more important in countries where legal protection of minority shareholders is weak; therefore the need to pay dividends in these countries is greater. This view indicates that, ceteris paribus, when legal protection of shareholders is stronger, dividend payouts are lower. Tesing the two models with a research data of 4,000 companies incorporated in 33 countries

with a wide range of minority shareholder rights, La Porta et al. (2000) find empirical supporting evidence of the outcome agency model of dividends.

Brockman and Unlu (2009) broaden the analysis of the substitute model by investigating the ability of creditor protection to decrease agency costs of debt. They find that creditor rights vary considerably across countries in similar legal families and with similar shareholder rights. For instance, four common law countries including the U.S., Canada, the U.K., and Australia have high shareholders rights index; however the two former are of the top creditor protection while the two latter are of the bottom. Moreover, the U.K. and Australia firm has 87% likelihood of paying dividends and 2.80 times of dividend to sales ratio higher than the U.S. and Canada typical firm. Consequently, weak creditor protection may result in lower probability to pay and dividend payouts. Brockman and Unlu (2009) argue that creditor rights can have an effect on corporate decisions as they give the ground rules for the conflicts of interest between shareholders and creditors. Beside the reputation-building mechanism, dividend restrictions are also a compensation for weak creditor protection. When creditors are insufficiently protected, they are not confident that they can recover claims over the period of bankruptcy proceedings. Therefore, creditors have a stronger incentive to demand more powers to control the corporate decision-making process via private credit agreements in which the two contracting parties are agree to restrict dividends. The empirical test for the substitute model based on agency costs of debt is conducted with a large sample including 120,507 firm-year observations from 16,525 unique firms incorporated in 52 countries during the period from 1990 to 2006. Firstly, they investigate the impact of creditor rights on the probability of paying dividends while controlling firm level variables (i.e. firm maturity, debt ratio, profitability, sales growth, firm size, cash holdings, and shareholder protection). As predicted, their research findings show supporting evidence of the substitute model with a significantly positive relationship between creditor rights and the likelihood of dividend payment. In addition, they continue to test the hypothesis with dividend payout ratios and find that creditor rights also have a positive association with dividend payouts. After finding supporting evidence for dividend payouts, they investigate additional implications of the substitute model and show three findings which are consistent with the substitute model as follows: (1) Firms from weak creditor protection countries are more likely to omit dividends; (2) Firms with high credit worthiness have less demand to restrict dividend payouts as a substitute for weak creditor rights and (3) Creditor rights exert a stronger impact on dividend payouts when free cash flows are positive.

Byrne and O'Connor (2012) argue that if creditor rights have the greatest impact on corporate dividend policy as suggested by Brockman and Unlu (2009), the likelihood of paying dividends and the dividend payout may be much lower under poor creditor protection even when shareholder protection is strong. This implies the ability of shareholders to force insiders to disgorge cash dividends is diminished under weak creditor protection even when legal rights are strong. Accordingly, they extend the line of research by examining whether shareholders are, by their legal rights measured at both the country level and the firm level, more capable of extracting larger dividends from firms even when creditors are likely to claim for them otherwise. Using a sample of 22,374 firms incorporated in 35 countries with pooled logit and Tobit analysis, they find that while creditor protection, shareholder protection and corporate governance all affect both the likelihood of paying dividends and dividend payouts, creditors exhibit the greatest effect. This finding is consistent with Brockman and Unlu (2009). Moreover, the regression results show that shareholder rights variables at the firm level and the country level also affect dividend policy, in particular the latter dominates. The outcome model based on agency costs of equity is most effective in countries which have strong creditor protection and it is much less relevant in countries with poor creditor rights. When creditors are insufficiently protected, they demand dividend restrictions and firms agree to do so.

Shao, Kwok, and Guedhami (2013) argue that from perspective of corporate governance, corporate dividend policy is a decision on which there are conflicts of interest between minority shareholders and creditors. Minority shareholders like more dividends paid as a means to decrease the risk of expropriation by insiders whilst creditors demand dividend restrictions as means to reduce the risk of expropriation by shareholders. Consequently, a change in dividend decisions tends to be the benefit of one side and the cost of the other side. This indicates that insiders cannot reduce the agency costs of equity and debt at the same time by adjusting dividends. An optimal dividend decision balancing the interest of both shareholders and creditors can minimize the total costs arising from two types of agency problems. With such a balancing mechanism when the agency problem among equity claimants is not severe, insiders are expected to use dividends to mitigate the agency problem between equity and debt claimants; in contrast, when the agency problem between equity and debt claimants is not severe, insiders are expected to use dividends to mitigate the agency problem among equity claimants. Based on these arguments, Shao et al. (2013) suggest that either the outcome model based on agency costs of equity or the substitute model based on agency costs of debt fail to provide a full picture of dividend policy and agency costs. When creditor rights are stronger,

firms have more discretion to pay dividends as a substitute only if shareholder rights are sufficiently strong that firms are forced to disgorge free cash flows. Similarly, when shareholder rights are improved, firms tend to pay more dividends if they have flexibility to change dividend payment under strong creditor protection. They conduct an empirical test of a model of dividends with the interaction between the agency costs of shareholders and creditors using a sample of 139,168 observations from 39 countries over the period between 1991 and 2010. After firm level variables including debt ratio, firm growth, firm maturity, profitability, firm size and cash holdings are controlled, their research findings show that the positive effect of creditor protection on both the propensity to pay and dividend payouts is more significant when minority shareholder protection is stronger. These results persist with additional controls, potential sample composition problem, and alternative regression techniques. Furthermore, they analyze the role of shareholder protection on the validity of the substitute model by investigating whether the impact of creditor protection on dividend initiations and omissions changes across shareholder rights. The results report that strong creditor protection more dramatically increases the likelihood of dividend initiations when shareholder protection is strong and decreases the incidence of dividend omissions only when shareholder protection is strong. Finally, using the same procedures to examine the predictability of the outcome model by levels of creditor rights, they find that the positive impact of shareholder protection on both the probability of dividend payment and dividend payouts is stronger for countries which have strong creditor protection.

This study poists that the global financial crisis is a good exogenous shock to investigate how firms react to the increases in both types of agency costs. Worse economic prospects lead to a decline in expected return rates on investment and this creates more opportunities for insiders to expropriate minority shareholders (Johnson, Boone, Breach, & Friedman, 2000). Moreover, under the impact of a financial crisis, firms are less willing and able to establish a reputation of fair treatment of creditors due to more external financial constraints and they are also less willing to meet creditor demand to restrict dividends due to using dividends to establish a good reputation on their business activities. This study is shedding new light on the effects of shareholder and creditor rights on dividend policy when agency costs of shareholders and creditors tend to increase under the impact of an exogenous shock in macro-environment.

In conclusion, the extant literature shows that dividend policy is determined by a wide range of potentially conflicting factors. This PhD dissertation provides a new approach to investigate

dividend policy, new evidence of stock price anomaly in Vietnamese stock market and new evidence of the two agency models of dividends under the impact of agency cost increases.

Chapter 3: A TWO-STEP APPROACH TO INVESTIGATE DIVIDEND POLICY: EVIDENCE FROM VIETNAMES STOCK MARKET

3.1. Introduction

Dividend policy is one of the most debatable topics in corporate finance. Miller and Modigliani (1961); Miller and Scholes (1978) posit that under perfect markets, dividends do not matter since they can be offset by the change in shares outstanding with equity issues. However, in practice capital markets are not perfect and complete due to many frictions including information asymmetry, agency problems, transaction costs, firm maturity, catering incentives and taxes. Later theoretical and empirical studies find that dividend policy is determined by market frictions in both developed and emerging stock markets. In this study, we find that Vietnamese stock market is a good environment to investigate dividend policy due to following reasons: Firstly, as a newly established stock market, Vietnamese stock market may lack of effective regulations and experience to control expropriation by insiders, thus this is an opportunity to test the agency theory. Secondly, the market experiences short booming and crashing periods. In the former period, both transaction costs of external financing and the need to signal outside investors by dividends are low. However, they are much higher in the latter period. Therefore, these fluctuations are important to test the transaction cost theory and the signaling theory. Thirdly, a large proportion of listed firms are state-controlled. State-controlled firms experience "double principal-agent problem" (Gugler, 2003) and may need more cash to finance other financially constrained SOEs or public projects (D. Chen et al., 2009). Consequently, we can investigate the impact of state control on dividend policy.

Moreover, the extant literature show that several prior studies focus on determinants of the likelihood of paying dividends (DeAngelo et al., 2006; Eugene F. Fama & French, 2001; Grullon & Michaely, 2002) or dividend payouts (Chang & Rhee, 1990; Holder et al., 1998; Rozeff, 1982). We argue that dividend policy is a two-step decision-making process. The first step is the decision on paying or not paying dividends and the second step is the decision on dividend payouts if firms decide to pay. In addition, from econometric perspective, the research data is censored since dividends are continuous to the right of zero. There is selection bias when OLS regression is applied for the full sample of non-payers and payers or the subsample of payers.

This study investigates the impact of firm-level characteristics on dividend policy including two steps of dividend paying decisions in Vietnamese stock market with Heckman's two-step regression approach to fix the selection bias (Wooldridge, 2010). We begin this study by investigating the factors affecting the likelihood of paying dividends, namely profitability, firm size, investment opportunities, earned/contributed capital mix, stock liquidity, insider ownership and state control. Then, we examine the impacts of investment opportunities, stock liquidity, free cash flow, insider ownership and state control on dividend magnitude measured by dividend payout ratio and dividend yield. The research sample includes 1,339 observations in Ho Chi Minh Stock Exchange (HSX) and Ha Noi Stock Exchange (HNX) over the period from 2006 to 2011.

3.2. Background information on Vietnamese stock market

Vietnamese stock market includes Ho Chi Minh City Stock Exchange (HSX) and Ha Noi Stock Exchange (HNX) which were established in 2000 and 2005 respectively. During the period from 2000 to 2005, there are less than 30 corporations listed in both stock exchanges. However, Vietnamese stock market started to develop rapidly in 2006. The number of listed companies in 2006 was over 5 times higher than in 2005 (Table 3.1). In addition, VN-INDEX and HNX-INDEX which are performance indices of HSX and HNX respectively rose dramatically from June 2006 and reached their peaks in the first quarter of 2007. Nevertheless, after two years of booming, the market experienced bubble burst in 2008 with sharp deteriorations in both stock exchanges. After a slight recovery in 2009, Vietnamese stock market tended to decline in the following years due to the impact of economic recession.

Table 3.1. Counts of listed firms in Vietnamese stock market

	2005	2006	2007	2008	2009	2010	2011
HSX	23	81	107	135	175	253	275
HNX	8	86	116	171	236	333	356
Total	31	167	223	306	411	586	631

Besides, from 2000 Vietnam government promoted the policy of reforming state-owned enterprises (SOEs). Accordingly, many 100% SOEs were requested to sell their stocks to the public at the maximum of 49% and be listed on stock exchanges. Consequently, Vietnamese stock market has a high percentage of state-controlled firms which have more than 50% of shares held by State or its agency.

According to Vietnam Enterprise Law, firms are allowed to retain 100% earnings or distribute their earnings in forms of cash dividends, retained earnings, stock dividends and share repurchases. Like other emerging markets, Vietnamese stock market has a high proportion of paying firms which is over 80% during the period from 2006 to 2011.

3.3. Literature review and hypothesis development

3.3.1. The decision of paying or not paying dividends

Eugene F. Fama and French (2001) examining the phenomenon of disappearing dividends of listed firms on NYSE, AMEX, and NASDAQ from 1978 to 1999 find that there are two reasons for the decline in the proportion of paying firms, namely changing firm characteristics and lower propensity to pay. The former includes profitability, firm size and investment opportunities. Grullon and Michaely (2002) make a contribution to explain "disappearing dividends puzzle" with the substitution of share repurchases for dividends. Moreover, propensity to pay dividend is also explained by catering incentives (M. Baker & Wurgler, 2004b). Due to the availability of information in Vietnamese stock market, this study investigates the effect of firm characteristics on paying behavior. Return on assets, log of sales revenue, asset growth and market-to-book ratio are used as proxies for profitability, firm size and investment opportunities with the following hypotheses:

H1a: Return on assets is positively related to the likelihood of paying dividends.

H1b: Sales revenue is positively related to the likelihood of paying dividends.

H1c: Asset growth is negatively related to the likelihood of paying dividends.

H1d: Market-to-book ratio is negatively related to the likelihood of paying dividends.

In addition, Grullon et al. (2002) argue that younger firms which have more investment opportunities but lower profitability have more probability of paying dividends than older ones. The former prefer retention of earnings to distribution of earnings because their savings of transaction costs exceed agency costs. DeAngelo et al. (2006) test the life cycle hypothesis with listed firms in U.S. market and find that the earned/contributed capital mix is positively correlated to the probability of dividend payment. Denis and Osobov (2008) investigate the probability of paying dividends in developed markets and show supporting evidence for the impact of profitability, firm size, investment opportunities and earned/contributed capital mix on decisions of paying or not paying dividends. Therefore, earned/contributed capital mix is hypothesized to have positive relationship with probability to pay dividends.

H1e: Earned/contributed capital mix is positively related to the likelihood of paying dividends.

Besides, Banerjee, Gatchev, and Spindt (2007) examine the relationship between stock market liquidity and dividend policy with a sample of a sample of NYSE and AMEX listed firms from 1963 to 2003. Their findings show that after controlling other firm characteristics, firms with higher stock liquidity are less likely to pay dividends. Bartov and Bodnar (1996) posit that stock liquidity is a potential proxy for the degree of information asymmetry since investors buy stocks with less information asymmetry more than those with higher level of information asymmetry. Bid-ask spread and share turnover are commonly employed as measures of stock liquidity; however, due to the availability of information, this study uses annual share turnover to measure stock liquidity.

H1f: Annual share turnover is negatively related to the likelihood of paying dividends.

Moreover, M. C. Jensen and Meckling (1976) posit that there is agency problem between shareholders and managers. Managers tend to use free cash flows to finance unprofitable projects. Consequently, dividends are a mean to reduce agency problem (Rozeff, 1982). When agency problem is more serious, firms are more likely to pay dividends. This study employs insider ownership to investigate the impact of agency problem on paying decisions. If insider ownership is higher, agency problem is lower. Therefore, it is hypothesized that there is a negative relationship between insider ownership and the probability of paying dividends.

H1g: Insider ownership is negatively related to the likelihood of paying dividends.

According to D. Chen et al. (2009), state-related shareholders tend to need more cash to finance other financially constrained SOEs or public projects. Hence, state-controlled firms tend to have higher probability to pay dividends. We use a dummy variable assigned one for state-controlled firms and hypothesize that state control have a positive impact on paying decisions.

H1h: State control is positively related to the likelihood of paying dividends.

3.3.2. The decision of dividend levels

Transaction cost theory, residual theory, and pecking order theory have the same argument that firms prefer internal financing to external financing. Firstly, if transaction costs of issuing debt or equity are significant, firms with higher transaction costs will retain more earnings to finance business activities and hence pay lower dividends. Secondly, according to residual theory, firms will pay dividends only if they do not have profitable investment opportunities (Ghosh & Woolridge, 1989). Thirdly, pecking order argument developed by Stewart C. Myers and

Nicolas S. Majluf (1984) states that firms prioritize sources of financing from internal funds to equity due to information asymmetry between managers and outside investors. Therefore, when firms have more investment opportunities, they tend to retained more earnings and payless dividends. Higgins (1972); Rozeff (1982) find significant negative impacts of investment expenditures on dividend levels in US stock markets. The extant literature shows that asset growth and market-to-book value ratio are commonly used proxies for current and future investment opportunities (Eugene F. Fama & French, 2001). Hence, this study hypothesizes that both market to book ratio and asset growth have negative effects on dividend payout ratio.

H2a: Asset growth is negatively related to dividend level.

H2b: Market-to-book ratio is negatively related to dividend level.

Moreover, when firms are more likely to use internal earnings to finance investment opportunities than external funds, firms with higher leverage tend to pay lower dividends. G. R. Jensen et al. (1992) find negative impact of firm leverage on dividend policy. Therefore, leverage is hypothesized to have negative relationship with dividend levels.

H2c: Leverage is negatively related to dividend level.

In stock markets, insiders have more information on firms' profitability than outside investors (Miller & Rock, 1985). Bhattacharya (1979) argues that cash dividends are a signal of firms' future performance and firms paying higher levels of dividends are considered to be more profitable in the future. It implies that when information asymmetry is reduced, firms pay lower levels of dividends. We use stock liquidity measured by annual share turnover as a proxy for information asymmetry to examine the relationship between information asymmetry and dividend policy.

H2d: Annual share turnover is negatively related to dividend level.

Based on the argument of agency problem, Rozeff (1982) develops free cash flow hypothesis stating that dividend payment is a device to mitigate excessive funds which managers can use to invest in negative net present value projects. Holder et al. (1998) initially employ free cash flow to test agency theory with the sample of 477 firms listed in US stock market between 1983 and 1990. Their research findings show firms with higher free cash flows pay lower levels of dividends. Therefore, this study hypothesizes that there is a positive relationship between free cash flow and dividend payout ratio.

H2e: Free cash flow is positively related to dividend level.

In addition, Rozeff (1982) posit that insider ownership is a measure of agency costs. Lower insider ownership indicates higher agency costs; therefore, outsiders who hold larger percentage of shares will demand higher dividends to reduce agency costs. Holder et al. (1998); Rozeff (1982) find empirical evidence supporting the negative relationship between the percentage of insider ownership and dividend levels.

H2f: Insider ownership is negatively related to dividend level.

D. Chen et al. (2009) argue that state-controlled firms pay higher levels of dividends than non-state-controlled firms since they need more funds to finance other financially constrained SOEs or public projects. In addition, Gugler (2003) argue that the "double principal-agent problem" arises in state-controlled firms. These firms are operated by managers who are appointed by politicians. Politicians are elected by citizens who are real owners of state-controlled firms. Consequently, they pay higher dividends to mitigate agency costs. Wei et al. (2004) also find the positive effect of state control on dividend payout ratio. However, the "double principal-agent problem" may lead to lower dividend levels if managers are not well-controlled.

H2g: State control is positively related to dividend level.

3.4. Data

3.4.1. Sample selection

In the period from 2006 to 2011, there are 2,131 non-financial observations in both Ho Chi Minh Stock Exchange (HSX) and Ha Noi Stock Exchange (HNX). However, to improve the accuracy of research findings, observations which are subject to one of the following criteria are eliminated from the research data:

- Observations belonging to the period from 2000 to 2005 since the number of listed firms was extremely limited and the information of dividend payment is not available;
- Observations of the listing year;
- Observations with missing or incomplete information;
- Observations with dividend payout ratios greater than one as outliers (Grullon & Michaely, 2002).

The final research sample includes 1,339 observations including 284 non-payers and 1055 payers.

In Table 3.2, Panel A shows distribution of non-financial observations in the population and the research sample by year. In the first booming year of 2006, 163 non-financial firms are listed in

Ho Chi Minh City Stock Exchange and Hanoi Stock Exchange; however, there are only 28 firms in the research sample due to the elimination of 132 newly listed firms and 3 firms with missing or incomplete information. The number of observations in the sample increases from 146 to 417 over the period from 2007 to 2011. Panel B illustrates the number of non-financial observations in each industry sector in accordance with the Industry Classification Benchmark. About 55% non-financial firms in the population and the sample are from the Industrials sector. It is followed by Consumer goods (16%-19%), Basic materials (9%-10%), Consumer services (6%-7%), Utilities (4%-5%), Health care (3%), Oil and Gas (2%) and Communication (1%).

Table 3.2. Distribution of non-financial observations in Vietnamese stock market and the research sample

Panel A - Distribution by year

Year	Non-financial listed firms			Firms in the sample		
	HSX	HNX	Total	HSX	HNX	Total
2006	77	86	163	20	8	28
2007	101	114	215	71	75	146
2008	126	168	294	88	98	186
2009	159	226	385	112	136	248
2010	211	306	517	141	173	314
2011	234	323	557	182	235	417
Total	908	1223	2131	614	725	1339

Panel B - Distribution by industry sector

Industry sector	Non-financial listed firms			Firms in the sample		
	HSX	HNX	Total	HSX	HNX	Total
Industrials	387	806	1193	246	468	714
Consumer goods	242	110	352	176	73	249
Basic materials	123	98	221	70	51	121
Consumer services	48	91	139	28	60	88
Oil and Gas	17	37	54	13	24	37
Health care	34	21	55	25	10	35
Communication	7	7	14	5	6	11
Utilities	60	27	87	42	19	61
Technology	13	34	47	9	14	23
Total	931	1231	2162	614	725	1339

3.4.2. Variable definitions

Dependent variable to investigate decisions of paying or not paying dividends is a binary variable which is one if firms pay dividends and zero otherwise. Dividend levels are measured by dividend payout ratio (DPR) and dividend yield (DY). The former is measured by the proportion of earnings paid to shareholders as dividends and the latter is calculated by the ratio of annual dividend per share to stock price at the end of each year. Their definitions illustrate that dividend payout ratio contains internal characteristics of firms (McManus, Ap Gwilym, & Thomas, 2004) whilst dividend yields tend to be affected by external factors which are reflected by stock prices (Stevens & Jose, 1992). In addition, dividend payout ratio illustrates information on firms' financing behavior whilst dividend yield implies information on rate of return of investors.

Table 3.3. Research variable definitions

Variables	Definitions	Expected signs
Return on assets (ROA)	Net income divided by total assets	+
Firm size (SIZ)	Log of sales revenue	+
Asset growth (AGR)	Ratio of current year's change in total assets	-
Market to book ratio (MTB)	Market value of assets divided by total assets at the end of each year	-
Leverage (LEV)	Ratio of total debt to total assets	-
Earned/contributed capital mix (ECC)	Retained earnings to Equity	+
Annual share turnover (AST)	Ratio of Annual total trading volume to Average number of outstanding shares	-
Free cash flow (FCF)	(Operating income + depreciation - taxes - interest expenses - preferred dividends - ordinary dividends)/total assets	+
Insider ownership (INS)	Proportion of shares held by insiders	-
State control (STA)	1 for the state-controlled firms which have more than 50 percent of common shares owned by State or its agencies	+

The definitions of exploratory variables are in line with prior studies. Return on assets (ROA) is net income divided by total assets. Firm size (SIZ) is log of sales revenue. Asset growth (AGR) is ratio of current year's change in total assets and market to book ratio (MTB) is calculated as market value of assets divided by total assets at the end of each year (Eugene F. Fama & French, 2001; Grullon & Michaely, 2002). Leverage is defined as ratio of total debt to total

assets. Earned/contributed capital mix (ECC) is measured by ratio of retained earnings to equity (DeAngelo et al., 2006; Denis & Osobov, 2008). Annual share turnover (AST) is measured by ratio of annual total trading volume to average number of outstanding shares. Although trading volume is affected by information events (Beaver, 1968), the number of information days is relatively small compared with the number of trading days. Therefore, the errors-in-variables problem is insignificant (Bartov & Bodnar, 1996).

Table 3.4. Counts and percentage of firms in various dividend groups

	2006	2007	2008	2009	2010	2011
Counts of the sample						
All firms	28	146	186	248	314	417
Non-payers	4	17	21	43	59	140
Payers	24	129	165	205	255	277
New lists	28	118	41	59	67	109
State-controlled	4	52	65	89	108	137
Percentage in all firms (%)						
Non-payers	14.3	11.6	11.3	17.3	18.8	33.6
Payers	85.7	88.4	88.7	82.7	81.2	66.4
New lists	100.0	80.8	22.0	23.8	21.3	26.1
State-controlled	14.3	35.6	34.9	35.9	34.4	32.9
Percentage in new lists (%)						
Payers	85.7	88.1	87.8	76.3	88.1	64.2
Non-payers	14.3	11.9	12.2	23.7	11.9	35.8
Percentage in state-controlled firms (%)						
Payers	100.0	96.2	95.4	88.8	90.7	80.3
Non-payers	0.0	3.8	4.6	11.2	9.3	19.7

Moreover, free cash flow (FCF) is calculated as operating net income before depreciation minus corporate income tax, interest expenses, and cash dividends deflated by total assets. Although the extant literature shows several measures of free cash flow, this study uses the definition of free cash flow suggested by Lang, Stulz, and Walkling (1991) since it indicates the actual free cash flow which is available to managers (Wang, 2010). Insider ownership (INS) is measured by proportion of shares held by insiders (Holder et al., 1998; Rozeff, 1982). State control (STA) is represented by a dummy variable which is assigned "one" if firms are state-controlled, "zero" otherwise (Gugler, 2003; Wei et al., 2004). State-controlled firms are defined as firms with more than 50 percent of total outstanding shares held by State or its agencies.

In addition, in order to control effects of time and industry sector on dividend policy, this study uses dummy variables for years and industry sectors in two regression steps. Relevant information to calculate dividend payout ratio and all explanatory variables except insider ownership is from the database supplied by Tan Viet Securities Company (www.tvsi.com.vn). It is cross-checked with Stockbiz database (www.stockbiz.vn). They are leading database suppliers in Vietnam. Insider ownership is collected from annual reports by hand.

3.4.3. Descriptive statistics

Table 3.4 illustrates the number and the proportion of observations in different dividend groups. In line with many emerging markets, Vietnamese stock market experiences high percentage of paying firms in the research period. The proportion of payers increases slightly in the first three years from 85.7% (2006) to 88.7% (2008) and declines to 81.2% (2010). In 2011, due to more severe recession in Vietnamese economy, listed firms have lowest profitability in the research period with the average return on assets of 6.2%. Therefore, firms are less likely to pay dividends and payers account for 66.4% of sampled firms in this year. In addition, new lists which are defined as observations of the second year of listing constitute over 20% of firms in the sample each year. Contrary to findings of Eugene F. Fama and French (2001) in the U.S. market, the yearly proportion of new lists paying dividends is equivalent to that of paying firms in the research sample. Moreover, state-controlled firms comprise approximately one-third of sampled firms. The percentage of payers in state-controlled firms is higher than in the full sample over the period from 2006 to 2011. This indicates that state-controlled firms are more likely to pay dividends than private firms.

Table 3.5. Counts and percentage of non-payers and payers by industry sector

	Non-payers (N=284)		Payers (N=1055)	
	Counts	Percentage (%)	Counts	Percentage (%)
Industrials	161	22.5	553	77.5
Consumer goods	46	18.5	203	81.5
Basic materials	28	23.1	93	76.9
Consumer services	16	18.2	72	81.8
Oil and Gas	4	10.8	33	89.2
Health care	4	11.4	31	88.6
Communication	6	54.5	5	45.5
Utilities	9	14.8	52	85.2
Technology	10	43.5	13	56.5

Table 3.5 presents counts and proportion of non-payers and payers by industry sector. Percentage of payers in the four largest industry sectors including Industrials, Consumer goods, Basic materials and Consumer services ranges from 77% to 82%. Other industries with higher proportion of paying firms (Oil and Gas, Health care) or lower proportion of paying firms (Communication, Technology) only comprise about 12.5% of firms in the research data. This implies that there is no considerable impact of industry sectors on decisions of paying or not paying dividends.

Table 3.6 shows descriptive statistics of research variables in two groups of observations including non-payers and payers. It is clear that on average, paying firms distribute more than 50% of earnings as dividends and their dividend yield is 9%. They have much higher average profitability, retained earnings to equity and larger size than zero dividend firms. Average asset growth and market-to-book ratio of payers are slightly higher than those of non-payers but with large standard deviations. In addition, average annual share turnover and insider ownership of positive dividend observations are lower than those of zero dividend observations. The descriptive statistic of state control dummy variable indicates that state-controlled firms are more likely to pay dividends in the period between 2009 and 2011.

Table 3.6. Summary statistics of research variables of dividend paying decisions

DPR is dividend payout ratio. DY is dividend yield. ROA is return on assets. SIZ is log of sales revenue. AGR is ratio of current year's change in total assets. MTB is market value of assets divided by total assets at the end of each year. ECC is ratio of retained earnings to equity. AST is ratio of annual total trading volume to average number of outstanding shares. INS is proportion of shares held by insiders. STA is dummy variable assigned one for the state-controlled firms which have more than 50 percent of common shares owned by State or its agencies, zero otherwise.

	Non-payers (N=284)			Payers (N=1055)		
	Median	Mean	Std. dev.	Median	Mean	Std. dev.
DPR	0.00	0.00	0.00	0.52	0.52	0.21
DY	0.00	0.00	0.00	0.07	0.09	0.06
ROA	0.01	0.02	0.07	0.08	0.09	0.07
SIZ	26.20	26.33	1.40	26.78	26.76	1.36
AGR	0.07	0.18	0.51	0.18	0.27	0.40
MTB	0.91	1.02	0.55	1.02	1.28	0.90
ECC	0.04	-0.02	0.42	0.14	0.15	0.10
AST	0.69	1.43	3.05	0.71	1.15	1.30
INS	0.07	0.13	0.15	0.03	0.08	0.11
STA	0.00	0.18	0.39	0.00	0.38	0.49

In Table 3.7, research variables of payers are grouped into quartiles by payout ratio. From the lowest to the highest quartile, means of dividend yield, asset growth, market-to-book, leverage and free cash flow tend to decrease considerably. Average annual share turnover and standard deviation in the first quartile are higher than in the second quartile; however, from the second quartile to the fourth quartile they increases slightly. Insider ownership mean is 0.09 in the lowest quartile and remain steady at 0.07 in the following quartiles. On average, market-to-book ratio decreases rapidly from the lowest quartile (1.49) to the highest quartile (0.22); nevertheless, it has high levels of standard deviation.

Table 3.7. Summary statistics of paying firms' research variables grouped by into quartiles by dividend payout ratio

DPR is dividend payout ratio. DY is dividend yield. AGR is ratio of current year's change in total assets. MTB is market value of assets divided by total assets at the end of each year. LEV is ratio of total debt to total assets. AST is ratio of annual total trading volume to average number of outstanding shares. FCF is (operating income + depreciation - taxes - interest expenses - preferred dividends - ordinary dividends) divided by total assets. INS is proportion of shares held by insiders. STA is dummy variable assigned one for the state-controlled firms which have more than 50 percent of common shares owned by State or its agencies, zero otherwise.

	Q1		Q2		Q3		Q4	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
DPR	0.26	0.08	0.44	0.04	0.59	0.04	0.80	0.08
DY	0.06	0.04	0.08	0.05	0.10	0.07	0.11	0.07
AGR	0.34	0.29	0.29	0.52	0.22	0.34	0.22	0.41
MTB	1.49	1.26	1.32	0.72	1.23	0.74	1.10	0.71
LEV	0.51	0.21	0.49	0.23	0.49	0.22	0.45	0.24
AST	1.30	1.52	1.03	1.00	1.09	1.22	1.16	1.40
FCF	0.11	0.09	0.07	0.09	0.06	0.12	0.02	0.05
INS	0.09	0.13	0.07	0.11	0.07	0.09	0.07	0.10
STA	0.35	0.48	0.41	0.49	0.42	0.49	0.36	0.48

3.5. Methodology

On the one hand, from econometric perspective, the research sample is a censored sample in which dividends are continuous to the right of zero. Using OLS regressions both for the full sample of non-payers and payers or the subsample of payers leads to biased results due to selection problem. In this case, tobit and Heckman two-step regressions are suggested instead (Wooldridge, 2010). On the other hand, dividend policy includes two steps of making decisions. Firstly, firms decided to pay or not to pay dividends. Secondly, if firms decide to pay dividends, they continue to decide the magnitude of dividends. Therefore, this study employs

Heckman two-step selection approach to investigate dividend policy with two steps of their decision making process.

In the first step, a probit regression model is used to estimate the probability of dividend payments as follows:

$$PPD_i = \begin{cases} 1 \; if \; PPD_i^* > 0 \\ 0 \; if \; PPD_i^* \leq 0 \end{cases} \qquad \text{(Eq.3.1)}$$

Where PPD_i is the observable dependent variable which takes one if PPD*>0 and zero otherwise. PPD* is the latent variable: $PPD_i^* = \alpha + \beta X_{1i} + u_i$; $u_i \sim N(0,\sigma^2)$. X_{it} is the column vector of explanatory variables of firm i. The vector contains ROA, SIZ, AGR, MTB, ECC, AST, INS and STA. u_i is the residual term of firm i.

The first step probit regression also generates the inverse Mill's ratio (IMR) which is denoted as λ and measured by the following formula:

$$\lambda_i = \varphi(X_{1i}\beta)/\Phi(X_{1i}\beta) \qquad \text{(Eq.3.2)}$$

Where φ is the standard normal density function and Φ is the standard normal cumulative distribution function.

In the second step, pooled OLS regression model is applied to estimate relationships between dividend payout ratio and its determinants by regressing payout ratio on X_{2i} and λ_i. Where X_{2i} is the explanatory variables of firm i. The vector X_{2i} contains AGR, MTB, LEV, AST, FCF, INS and STA. If the IMR is significant, there is a selection bias which is fixed by the two-step selection approach.

3.6. Findings

In Table 3.8, Panel A presents results of Heckman's first step probit regression with both year and industry dummy variables. Consistent with Denis and Osobov (2008); Eugene F. Fama and French (2001), market-to-book ratio, a measure of investment opportunities, is negatively related to probability of paying dividends while profitability and firm size have significantly positive impacts on probability of dividend payments. Firms prefer internal financing to external financing; therefore, they are less likely to pay dividends when they have more investment opportunities. In addition, firms with higher profitability are more likely to have residual cash flows after financing their investment projects; therefore, they are more likely to distribute dividends. Moreover, larger firms can raise external funds to finance investment opportunities more easily in capital markets as they are well-establish and have good reputation

(Chang & Rhee, 1990; Holder et al., 1998). This implies that larger firms incur lower transaction costs of external financing and are more likely to pay dividends.

Earned/contributed capital mix is positively associated with the probability to pay dividends at 1% of significance. In line with DeAngelo et al. (2006); Grullon et al. (2002), more mature firms with higher earned/contributed capital mix are more likely to have residual cash flows hence they have higher probability of dividend payment. The significantly negative relationship between annual share turnover and payout ratio can be explained by signaling mechanism. Higher stock liquidity indicates that firms experience lower levels of information asymmetry between outside investors and insiders. Consequently, they have lower propensity to pay dividends as a signal of firm quality. Besides, the negative correlation between insider retention and the likelihood of dividend payments implies that there are conflicts of interest between managers and shareholders. When the separation of ownership in firms is higher, managers tend to use free cash flows to maximize their own interest instead of shareholders' wealth (M. C. Jensen & Meckling, 1976). Therefore, firms are more likely to become non-payers. State-controlled firms have higher probability to distribute dividends since they need funds to support other SOEs which are financially constrained and finance public projects for political goals (D. Chen et al., 2009).

Table 3.8. Results of Heckman's two step regression with year and industry dummies

In the first step, dependent variable is a binary variable which takes one if firms pay dividends, zero otherwise. In the second step, dependent variables are dividend payout ratio (DPR) and dividend yield (DY). ROA is return on assets. SIZ is log of sales revenue. AGR is ratio of current year's change in total assets. MTB is market value of assets divided by total assets at the end of each year. LEV is ratio of total debt to total assets. ECC is ratio of retained earnings to equity. AST is ratio of annual total trading volume to average number of outstanding shares. FCF is (operating income + depreciation - taxes - interest expenses - preferred dividends - ordinary dividends) divided by total assets. INS is proportion of shares held by insiders. STA is dummy variable assigned one for the state-controlled firms which have more than 50 percent of common shares owned by State or its agencies, zero otherwise.

Panel A - The first step

Explanatory variables	Expected sign	Coefficients	z-statistics
Intercept		-4.0505***	-3.63
ROA	+	12.9328***	9.38
SIZ	+	0.1810***	4.74
AGR	-	0.0586	0.55
MTB	-	-0.3103***	-2.98
ECC	+	1.5398***	3.09

AST	-	-0.0792***	-2.7
INS	-	-1.8743***	-4.35
STA	+	0.2296*	1.92

Panel B - The second step

Explanatory variables	Expected sign	DPR		DY	
		Coefficients	z-statistics	Coefficients	z-statistics
Intercept		0.6407***	3.64	0.0437***	2.6
AGR	-	-0.0143	-0.37	-0.0079**	-2.09
MTB	-	-0.0307	-1.36	-0.011***	-5.22
LEV	-	-0.3455***	-4.65	0.0173**	2.36
AST	-	-0.019	-1.51	0.0005	0.41
FCF	+	-0.5354***	-2.94	-0.0265	-1.49
INS	-	-0.3562**	-2.29	0.0004	0.03
STA	+	0.0328	0.88	-0.0017	-0.48
Wald χ^2		54.95***		965.04***	
Lamda		0.5390***		-0.0335***	
Number of observations		1339			
Censored observations		284			
Uncensored observations		1055			

*** Significant at the 1% level, ** Significant at the 5 % level, * Significant at 10% level.

Panel B illustrates findings of Heckman's second step regression with both year and industry dummy variables. Two proxies for investment opportunities including asset growth and market-to-book ratio are negatively related to dividend yield at significant levels of 5% and 1% respectively. If firms have more investment opportunities, they retain more earnings for internal financing and their stocks are valued at higher prices due to investors' expectation on their future prospects. As a result, firms with more investment opportunities tend to have lower dividend yields. In addition, leverage is negatively related to payout ratio at the significant level of 1% while it has a positive relationship with dividend yield at the significant level of 5%. The former implies that firms with higher leverage need more retained earnings for internal financing and hence, they distribute a lower proportion of earnings as dividends. The latter is explained that firms with higher debt ratios are exposed to higher risk for bankruptcy; therefore, investors expect higher returns for their stocks and value them at lower prices which lead to higher levels of dividend yields.

Remarkably, contrary to free cash flow hypothesis, free cash flows to total assets ratio is inversely related to payout ratio at 1% of significance. This can be explained by two reasons: Firstly, there are agency conflicts between managers and shareholder; as a result, managers hold more free cash flows to maximize their own interest. Secondly, in line with the negative relationship between investment opportunities and dividend levels, firms tend to hold more free cash flows to finance their business activities and pay lower levels of dividends. Moreover, consistent with Holder et al. (1998); Rozeff (1982), insider ownership has a negative impact on dividend payout ratio at the significant level of 5%. When the separation between ownership and management is larger, managers tend to make business decisions on their own interest instead of owners' wealth and distribute lower dividends to increase available free cash flows.

3.7. Robustness checks

Table 3.9. Robustness check of the second step by OLS regression

Dependent variables are dividend payout ratio (DPR) and dividend yield (DY). AGR is ratio of current year's change in total assets. MTB is market value of assets divided by total assets at the end of each year. LEV is ratio of total debt to total assets. AST is ratio of annual total trading volume to average number of outstanding shares. FCF is (operating income + depreciation - taxes - interest expenses - preferred dividends - ordinary dividends) divided by total assets. INS is proportion of shares held by insiders. STA is dummy variable assigned one for the state-controlled firms which have more than 50 percent of common shares owned by State or its agencies, zero otherwise.

Explanatory variables	Expected sign	DPR		DY	
		Coefficients	t-statistics	Coefficients	t-statistics
Intercept		0.6964***	10.38	0.04**	2.46
AGR	-	-0.0317**	-2.09	-0.0067*	-1.83
MTB	-	-0.0277***	-3.33	-0.0112***	-5.58
LEV	-	-0.2054***	-7.15	0.0081	1.16
AST	-	-0.0012	-0.25	-0.0007	-0.56
FCF	+	-0.8647***	-12.6	-0.0048	-0.29
INS	-	-0.1427**	-2.44	-0.0136	-0.96
STA	+	-0.002	-0.14	0.0006	0.18
Adj. R-squared		0.2301		0.4898	
F(20, 1034)		16.75***		51.58***	
Number of observations		1055		1055	

*** Significant at the 1% level, ** Significant at the 5 % level, * Significant at 10% level.

Table 3.9 shows results of OLS regression with year and industry dummies for the subsample of dividend payers. The findings of this robustness check confirm the impact of investment

opportunities and agency problem on dividend levels. However, compared with Heckman's second step regression, OLS regression has differences in significant levels of coefficients due to the presence of selection bias which is indicated by significant IMRs. Asset growth and market-to-book ratio are negatively related to dividend payout ratio at 5% and 1% of significance respectively. In addition, asset growth and leverage have lower explanatory power for dividend yield.

3.8. Conclusion

This study investigates dividend policy with two steps including decisions of paying dividends and decisions of dividend levels. Heckman's two-step regression approach is applied to fix the selection bias caused by censored research data. The first step regression results are consistent with Eugene F. Fama and French (2001) that firms with higher profitability, larger firm size and less available investment opportunities have higher likelihood of paying dividends. In addition, more mature firms with higher retained earnings to equity ratio have higher probability of paying dividends. Moreover, in line with Banerjee et al. (2007) and Rozeff (1982), firms with higher stock liquidity and insider ownership have lower likelihood of paying dividends respectively. State-controlled firms are more likely to pay dividends than non-state-controlled firms, this implies that they need funds to finance other financially constrained SOEs or public projects (D. Chen et al., 2009). The second step regression illustrates that firms with higher asset growth and market-to-book ratio have lower dividend yields. Besides, leverage has negative and positive impacts on payout ratio and dividend yield respectively. Contrary to free cash flow hypothesis, free cash flows to total assets ratio is negatively related to payout ratio which can be explained by agency conflicts between managers and shareholder and firms' investment opportunities. The agency theory is supported with the negative relationship between insider ownership and dividend payout ratio. The research findings show the following implications in Vietnamese stock market: Firstly, investors experience more expropriation by insiders when insider ownership is higher. Secondly, investors obtain lower levels of dividends paid as a signal of future prospect in firms which experience lower information asymmetry between insiders and outsiders. Thirdly, investors of state-controlled corporations have higher probability to receive dividends than those in firms which are not controlled by state. Besides, firms with higher investment opportunities, larger size and higher maturity are less likely to pay dividends.

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Chapter 4: NEW EVIDENCE OF DIVIDEND CAPTURE ON THE EX-DIVIDEND DAY

4.1. Introduction

Ex-dividend day anomaly of stock price is one of the most debatable issues in corporate finance with several theoretical and empirical studies in various institutional environments. Miller and Modigliani (1961) posit that in a perfect stock market without taxes, transaction costs and risk, stock prices should drop precisely by dividend amount on the ex-dividend day. However, many prior studies conducted in both developed and emerging markets show that the price drop is different from the dividend magnitude. There are three categories of theory on ex-dividend behavior of stock price. Firstly, tax clientele theory explains the difference between the stock price drop and the dividend paid only by tax treatment of capital gains to dividends. Secondly, short-term trading theory argues that tax indifferent arbitrageurs are marginal investors in the market; therefore, profit opportunities are exploited until the difference between price drop and dividend amount is equal to transaction costs. Thirdly, market microstructure theories explain ex-day price behavior with non-tax market frictions including limit order adjustment, price discreteness and bid-ask bounce. The explanatory power of these microstructure theories significantly relies on the institutional environment of a stock market.

Although Vietnamese stock market is a small market, it is a promising laboratory to examine ex-day behavior of stock price because of its institutional environment regarding trading regulations and tax policy. Firstly, the market uses periodic call auction mechanism for determining both opening and closing prices and there is no market maker. Secondly, tick size is much smaller than dividend amount. These imply that market microstructure theories based on limit order adjustment, price discreteness and bid-ask spread are not applicable explanations. Thirdly, unlike many markets' taxation of capital gains and dividends, there is no considerably preferential treatment of capital gains to dividends. Finally, short-selling is prohibited. Therefore, tax-induced hypothesis and dividend capture hypothesis are possible to explain the ex-day behavior of stock price. However, after comparing the observed values of price drop to dividend ratio and their expected values under the impact of tax policy, we conclude that tax treatment fails to explain the anomaly in the research frame work and only dividend capture hypothesis is applicable.

The remainder of this study is presented as follows: Section 2 reviews the extant literature on ex-dividend day anomaly of stock price. Section 3 discusses the unique characteristics

concerning trading regulations and taxation of dividends and capital gains in Vietnamese stock market. Section 4 demonstrates the research design to investigate the reaction of stock price and trading volume around the ex-dividend day. Section 5 describes the data collection method and descriptive statistics. Section 6 shows research findings and implications. Section 7 presents main conclusions.

4.2. Literature review

Elton and Gruber (1970) initially proposed tax clientele theory stating that ex-day behavior of a firm's common stock should be associated with its marginal stockholders' tax rates. An investor selling his stocks before the ex-day loses the right of receiving dividends. However, if he holds them until they go ex-dividend, he should expect to sell them at lower price due to his dividend retention. This stockholder is indifferent to the time of selling his stocks only if the benefits from two cases are equal. Accordingly, Elton and Gruber (1970) develop the following expression:

$$\frac{P_c - P_e}{D} = \frac{1 - t_d}{1 - t_g} \qquad \text{(Eq.4.1)}$$

Where P_c is stock price on the last cum-day, P_e is expected stock price on the ex-day, t_d is the marginal tax rate on dividends, t_g is the marginal tax rate on capital gains and D is the magnitude of dividend.

Subject to this analysis, the ratio of price drop to dividend $(P_c - P_e)/D$ always reflects the comparative marginal tax rates on stockholders' dividends and capital gains. Elton and Gruber (1970) posit that the relative marginal tax rates can be inferred by studying the stock price drop to dividend ratio on the ex-dividend day. In their model, marginal investors are long-term investors whose decisions of buying or selling are irrelevant to dividends.

However, Kalay (1982a) argues that in the absence of the tax clientele effect (i.e. tax rates on dividends and capital gains are equal), there are investors who are different to the timing of sale and trade due to dividends. In this case, transaction costs become relevant to the price drop to dividend ratio. If the expected price drop on the ex-day exceeds the dividend per share by more than the costs of buying and selling stocks, investors could short-sell their stocks on cum-dividend days and buy them back when they go ex-dividend to make a profit. On the other hand, if the expected price drop on the ex-day is less than dividend per share by more than transaction costs, investors tend to buy stocks on cum-dividend days and sell them on ex-dividend days to gain a profit. Therefore, a profit is realized only if it is not exploited by arbitrage activities and the condition of non-profit opportunities is presented as follows:

$$1 - \frac{\alpha P}{D} \leq \frac{P_c - P_e}{D} \leq 1 + \frac{\alpha P}{D} \qquad \text{(Eq.4.2)}$$

Where α is expected transactions costs of a round-trip transaction, $P = (P_c + P_e)/2$.

Eades et al. (1984) the ex-dividend day behavior of stock price on New York Stock Exchange from July 2nd, 1962 to December 31st, 1980 and find that the preferential treatment of capital gains to dividends cannot explain completely abnormal returns on ex-dividend days. Consequently, one cannot infer marginal tax rates on dividends and capital gains from the ratio of stock price drop to dividend.

Moreover, ex-day stock price behavior is also explained by market microstructure. Based on Rule 118 of New York Stock Exchange, Dubofsky (1992, 1997) argues that rounding down the price of existing limit buy orders to a multiple of a tick leads to less-than-one price drop to dividend ratio on the ex-dividend day. In addition, Frank and Jagannathan (1998) posit that investors consider dividends as a nuisance due to costs arising from dividend collection whilst market makers with lower collection costs tend to purchase stocks before ex-dividend days and resell them on ex-dividend days. Therefore, most trades are conducted at bid prices on cum-dividend days and at ask prices on ex-dividend days. These bid-ask spreads imply that price drops on ex-days are lower than dividend amounts. Furthermore, Bali and Hite (1998) argue that stock price behavior on ex-dividend days is determined by price discreteness. If stock prices are restricted to discrete ticks and dividends are continuous, dividend amounts are always rounded down to ticks next to dividends. This adjustment makes in ex-day price drops less than dividend amounts in most cases. If tick size is larger, price drop ratio will be higher.

4.3. Institutional environment

Vietnam stock market was established in July 2000 with Ho Chi Minh City Stock Exchange (HSX) and expanded in 2005 with Ha Noi Stock Exchange (HNX). Over the first five years from 2000 to 2005, financial activities in the market were not remarkable with only about 30 listed stocks; however, since 2006 more firms were listed and the market started to grow rapidly. In two years of booming, VN-INDEX and HNX-INDEX which are market indices of HSX and HNX respectively increased dramatically from January 2006 to reach their peaks in March 2007 and maintain at high levels until the end of 2007 (Figure 4.1). After that, the market plunged into recession during the year of 2008. Despite a slight recovery in 2009, Vietnamese stock market continued its downward trend in the two following years. Until December 31st, 2011 there were 694 firms listed in the market (e.i. 301 firms on HSX and 393 firms on HNX) and their market capitalization is equal to about 21% GDP.

Although Vietnamese stock market is small and emerging, it is a promising laboratory to investigate ex-dividend day behavior of stock price due to its special characteristics concerning trading regulations[1] and taxation of dividends and capital gains.

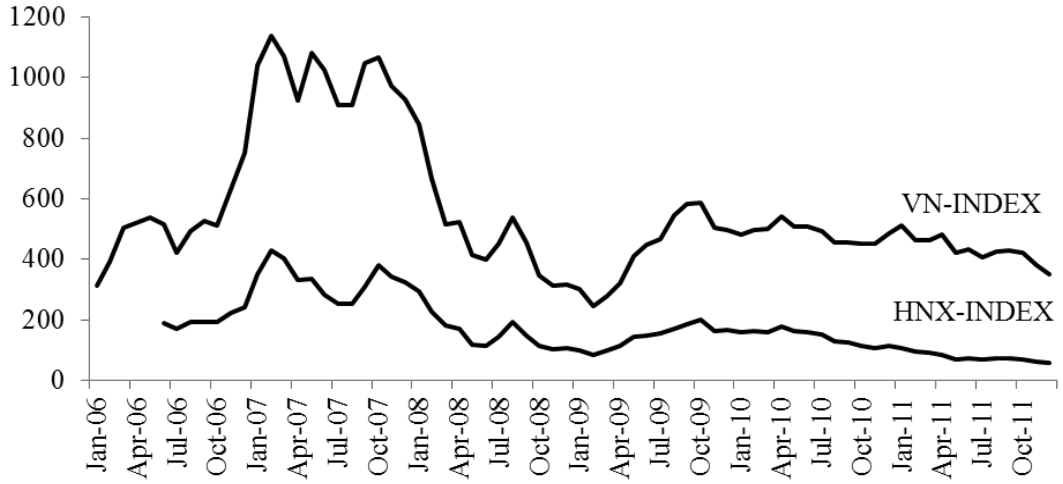

Figure 4.1. Performance of VN-INDEX and HNX-INDEX from 2006 to 2011

4.3.1. Trading regulations

According to Vietnam Enterprise Law dividend payment is not mandatory and there is no regulation on number of payment per year. Firms can retain 100% earnings or distribute their earnings in various forms including cash dividends, retained earnings, stock dividends and share repurchases. Like other emerging markets, Vietnamese stock market witnessed a high percentage of dividend payers which is over 80% from 2006 to 2011. Moreover, like in the U.S. market firms listed in Vietnamese stock market can pay cash dividends more than once a year (i.e. semi-annually, three times a year or quarterly).

Vietnamese stock market is a pure auction market in which trading activities are conducted via securities companies. Apart from playing the role of brokers, securities companies can buy and sell stocks on their accounts. Unlike in the U.S. market, securities companies are considered as normal investors and there is no market maker in Vietnamese stock market. Orders are initiated from securities companies through computer terminals on their premises or on the exchange floor. Brokerage fees for successful stock transactions depending total daily transaction value and transaction methods commonly vary from 0,15% to 0,35% of transaction value.

[1] Trading regulations presented are applicable to HSX. As trading rules of HSX and HNX are different, this study only focuses on ex-dividend price behavior of stocks listed on HSX. Firms listed on HSX constituted over 80% market capitalization during the period from 2006 to 2011.

Furthermore, short-selling is prohibited by Vietnam Securities Law and settlement cycle on Ho Chi Minh City Stock Exchange is T+3.

Table 4.1. Price range for buy and sell orders in Ho Chi Minh City Stock Exchange

Period	Price range
From January 1st, 2006 to March 26th, 2008	P_r +/- 5%
From March 27th, 2008 to April 6th, 2008	P_r +/- 1%
From April 7th, 2008 to June 15th, 2008	P_r +/- 2%
From June 16th, 2008 to August 17th, 2008	P_r +/- 3%
From June 18th, 2008 to December 31st, 2011	P_r +/- 5%

P_r is reference price of day t which is equal to closing price of day t – 1 if day t is not an event day and adjusted closing price of day t – 1 otherwise. Event days include ex-right days and most recent trading days after stock split and reverse stock split.

Moreover, prices from buy and sell orders in a trading day t are constrainted to a price range from price floor to price ceiling based on reference price which is equal to closing price of day t – 1 if day t is not an event day (Table 4.1) and adjusted closing price of day t – 1 otherwise. Event days include ex-right days and most recent trading days after stock split and reverse stock split. Unlike Hong Kong stock market where closing price is determined with continuous auction mechanism, Vietnamese stock market uses periodic call auction mechanism for determining both opening and closing prices. During the call auction, the price is set with the first priority of largest transaction volume and the second priority of closest with nearest matching order price. As a result, ask-bid spread is absent. The two features including no ask-bid spread and no market maker indicate that Frank and Jagannathan's microstructure hypothesis fails to explain behavior of stock price on ex-dividend days in Vietnamese stock market. In addition, contrary to NYSE Rule 118, HSX trading rules state that all of limit orders shall be cancelled at the end of closing trading session. Thus, there is no limit order adjustment for the next trading day which implies Dubofsky's model is not applicable.

Table 4.2. Tick size in Ho Chi Minh City Stock Exchange

Stock prices (1000 VND)	$0.0 < \text{stock price} \leq 49.9$	$50 \leq \text{stock price} \leq 99.5$	$\text{stock price} \geq 100$
Tick size (1000 VND)	0.1	0.5	1.0

Like New York Stock Exchange, Ho Chi Minh City Stock Exchange adjusts reference price on event days by rounding it down to the next tick. There are three levels of tick size, namely 0.1, 0.5 and 1.0 coresponding to three classes of stock price (Table 4.2). However, tick size is much

smaller than dividend magnitude. There are only 5.8% of research sample affected by price disreteness and the mean of price drop to dividend ratio on ex-dividend days decreases only 0.07% under the impact of price adjusment.

4.3.2. Taxation of dividends and capital gains

Table 4.3. Expected price drop to dividend ratios under the impact of tax policy

Single marginal investors	Tax rate for dividends	Tax rate for capital transfers	Expected price drop to dividend ratios
1st sub-period			
Individual investors	0%	0%	1.00
Vietnamese institutional investors	0%	28%[A] and 25%[B]	1.39[A] and 1.33[B]
Foreign institutional investors	0%	0.1% of selling price	1.00
2nd sub-period			
Individual investors	5%[C] and 0%[D]	20% or 0.1% of selling price[C] and 10% or 0.05% of selling price[D]	1.19 if investors register to pay 20% capital gains, otherwise 0.95 [C] and 1.01 if investors register to pay 20% capital gains, otherwise 1.00[D]
Vietnamese institutional investors	0%	25%	1.33
Foreign institutional investors	0%	0.1% of selling price	1.00

Note: 1st sub-period is from January 2006 to December 2009; 2nd sub-period is from January 2010 to December 2011; [A] is from to January 2006 to December 2009; [B] is from January 2010 to December 2011; [C] is from January 2010 to July 2011; [D] is from August 2011 to December 2011. Source: Circular No. 100/2004/TT-BTC, Law No. 09/2003/QH11, Law No. 14/2008/QH12, Law No. 04/2007/QH12, Circular No. 134/2008/TT-BTC, Decree No. 101/2011/ND-CP and Circular 160/2009/TT-BTC.

Although Vietnam's tax policy on dividends and capital gains is complicated and adjusted four times during the period from 2006 to 2011, it shows that generally there is no significantly preferential treatment of capital gains to dividends which is evident in several markets examined by prior studies (Table 4.3). In the first sub-period from 2006 to 2009, both dividends and capital gains earned by individual investors were exempt from tax while Vietnamese institutional investors' capital gains are charged 28% between January 2006 and December 2009. In the second sub-period, Vietnamese institutional investors' capital gains are taxed at 25%. Individual investors' dividends were taxed at the rate of 5% and they could choose to pay

20% of capital gains or 0.1% of selling price on transferring capital during the period from January 2010 to July 2011. Although individual investors registered to pay 20% of capital gains, they had to pay 0.1% of selling price at the time of transaction as a temporary tax payment and they would finalize their tax payment with the registered rate at the end of each year. From August 2011, in order to support and encourage investment from invidual investors in economic recession, Vietnamese government decreased tax rates for their dividends and capital gains to 0% and by 50% respectively. Remarkably, over the whole research period, foreign institutional investors only paid a flat tax rate of 0.1% of selling price when transferring capital. Unlike in the U.S. market, dividends are not charged any taxes after taxed at such rates. In all cases, the flat tax rate on selling price can be considered as transaction cost.

4.4. Research design

In line with prior studies, we investigate both stock price behavior and trading volume around the ex-dividend day with the event study methodology to determine whether short-term traders are marginal investors on the ex-day. The former is initially and commonly used but not enough to find marginal investors due to other factors (e.g. taxes, market liquidity), thus the latter is employed (Lakonishok & Vermaelen, 1986). Furthermore, OLS regression analysis investigating the relationship between dividend yield and abnormal return on the ex-day is also used to find evidence of marginal traders.

4.4.1. Ex-dividend stock price behavior

When making decisions of selling stocks on cum-dividend days or on ex-dividend days, investors face trade-off between the right to collect dividend payment and a decrease in stock price. If they sell stocks on cum-days, they lose the right. However, if they sell stocks on ex-days, they have to accept lower price (Elton & Gruber, 1970). In a perfect market without market frictions including taxes, transaction costs and risk, the difference between stock price on the last cum-day and the ex-day should be equal to dividend amount (Miller & Modigliani, 1961). This argument is presented in the following equation:

$$P_c - P_e = D \qquad \text{(Eq.4.3)}$$

Where: P_c is closing price on the last cum-day and P_e is expected closing price on the ex-day.

Dividing both sides of the equation by dividend amount (D), we get the original definition of ex-day price drop ratio denoted as PDR_1:

$$PDR_1 = \frac{P_c - P_e}{D} \qquad \text{(Eq.4.4)}$$

According to Kalay (1982a); Naranjo et al. (2000), closing price of a stock is significantly impacted by its daily normal return; therefore, this price should be adjusted. The most commonly used measure to adjust ex-day closing price in prior studies is daily market return (R_m). In this study, daily return of VN-INDEX is used as a proxy for daily market return. The market-adjusted ratio ($APDR_1$) is as follows:

$$APDR_1 = \frac{P_c - [P_e/(1+R_m)]}{D} \qquad \text{(Eq.4.5)}$$

Moreover, it is more likely that using the price drop to dividend ratio leads to heteroscedasticity (Boyd & Jagannathan, 1994; Eades et al., 1984; Roni Michaely, 1991). When dividend amount is used as a deflator, the weight allocated to changes in observations which have low dividends is extremely large. In line with Milonas et al. (2006), we scale the ex-dividend day price drop by the stock price on the last cum-day and obtain the new ratio as follows:

$$PDR_2 = \frac{P_c - P_e}{P_c} \qquad \text{(Eq.4.6)}$$

Similarly, market-adjusted price drop is deflated by cum-day price.

$$APDR_2 = \frac{P_c - [P_e/(1+R_m)]}{P_c} \qquad \text{(Eq.4.7)}$$

Moreover, following prior studies, we also investigate behavior of stock price around ex-dividend days with event-study methodology proposed by Brown and Warner (1985). Event window to examine stock price behavior is 21 days from Day -10 to Day +10 where the ex-day is considered as Day 0. Abnormal returns (AR) and cumulative abnormal returns (CAR) are computed based on an estimation window of 120 days starting from Day -130 and ending on Day -11. Estimation methods include market-adjusted return model and market model where VN-INDEX is used to measure daily market return.

According to Miller & Modigliani (1961), the price drop is equal to dividend amount in a perfect market. Therefore, the theoretical value of price drop ratios scaled by dividend amount is one, theoretical value of those deflated by cum-day price is dividend yield and theoretical value of abnormal returns is zero. In case the observed value of these measures are no equal to the theoretical ones, two theories including tax-induced clientele theory and transaction cost theory can explain behavior of stock price due to the trading regulations of Vietnamese stock market presented in Section 3.1. Firstly, if the stock price behavior is affected by different taxation of dividends and capital gains, in consistence with Elton and Gruber's model illustrated in Eq.4.2, price drop to dividend ratios with corresponding single marginal investors are demonstrated in Table 4.3. In addition, although according to Elton and Gruber's original

theory abnormal returns (ARs) on ex-days and cumulative abnormal returns (CARs) in the pre and the post ex-day period should be constrained to zero, the extensive analysis developed by Jerry (1980) shows that abnormal returns may be present on and around ex-days. Jerry (1980) argues that when delaying or advancing a transaction due to tax policy is expensive, investors charged with high tax rates tend to sell stocks on the last cum-day and buy stocks on the ex-day. This leads to positive abnormal returns and negative abnormal returns in the pre and the post ex-dividend periods respectively.

Secondly, if the stock price behavior is impacted by transaction costs, possible marginal investors whose dividends and capital gains are charged at the same tax rate are individual investors (except over the period from January 2010 to July 2011) and foreign institutional investors due to tax policy. Moreover, most arbitrage trading activities are conducted to capture dividends (i.e. buying shares before ex-days and selling shares after ex-days) since short-selling is prohibited. This indicates that abnormal returns (ARs) and cumulative abnormal returns (CARs) are positive over the period before stocks go ex-dividend and negative after stocks go ex-dividend (Lakonishok & Vermaelen, 1986).

4.4.2. Ex-dividend trading volume behavior

Lakonishok and Vermaelen (1986) posit that examining the reaction of stock price around ex-dividend days is not applicable to recognize whether ex-dividend day behavior of stock price is explained by long-term or short-term trading theories. Therefore, they propose using trading volume as a new evidence to point out marginal investors affecting stock prices on ex-dividend days. If excessive trading volume is found around ex-dividend days, the stock market is dominated by short-term traders. However, if abnormal trading volume is found positive before and on ex-days but negative after ex-days, long-term traders are marginal investors (Jerry, 1980). In line with prior studies, this study uses the methodology of event study to calculate abnormal trading volume (AV) around ex-days mean-adjusted model (Kato et al., 1995; Lakonishok & Vermaelen, 1986). Event window is 21 days from Day -10 to Day +10 and estimation window contains 30 observations from Day -40 to Day -11. Trading volume (%) is proxied by daily share turnover measured by total trading volume each day divided by number of shares outstanding.

4.4.3. The relationship between dividend yield and abnormal return

Prior studies show that relationship between dividend yield and abnormal return is also evidence to clarify whether ex-dividend stock price anomaly is present and which group of

investors dominates the market on ex-dividend days (Al-Yahyaee, 2007; Kato et al., 1995; Roni Michaely, 1996; Naranjo et al., 2000).

Where long-term investors are marginal traders on the ex-day, rearranging Eq.4.1 we calculate the ex-day return (R_e) by the following equation:

$$R_e = \frac{P_e - P_c + D}{P_c} = \frac{D}{P_c}\left(\frac{t_d - t_g}{1 - t_g}\right) \qquad \text{(Eq.4.8)}$$

This equation implies that the relationship between dividend yield and abnormal return measured by its last term relies on the difference between the tax rate on dividends (t_d) and the tax rate on capital gains (t_g) with three possible cases. Firstly, if there is no different taxation between dividends and capital gains, the abnormal return is zero. Secondly, if the difference is positive, dividend yield is positively correlated to abnormal return. Thirdly, if the difference is negative, dividend yield is negatively related to abnormal return.

However, determination of the relationship between dividend yield and abnormal return is more complicated if marginal traders are short-term traders. According to Kalay (1982a), when tax rates on dividends and capital gains are equal (t_0), investors buy stocks on cum-days and sell them on ex-dividend days to make a profit unless:

$$(1 - t_0)[D - (P_c - P_e) - \alpha P] \leq 0 \qquad \text{(Eq.4.9)}$$

In Vietnamese stock market, t_0 is equal to zero, rearranging Eq.4.9 we get:

$$R_e = \frac{P_e - P_c + D}{P_c} \leq \frac{\alpha P}{P_c} \equiv R_c \text{ (Eq.4.10)}$$

Where R_c is the maximum ex-day return in line with equilibrium when dividend capture investors are present.

When dividend capture investors determine the ex-day return, $P_e = (1 + R_c)P_c - D$. In line with Karpoff and Walkling (1990), substituting for P_e in Eq.4.10 and differentiating R_c with respect to dividend yield (D/P_c) we obtain:

$$\frac{\delta R_c}{\delta(D/P_c)} = -\frac{2\alpha}{1 - 2\alpha} \qquad \text{(Eq.4.11)}$$

Eq.4.11 indicates three cases for the relationship between dividend yield and abnormal return on the ex-day. Firstly, if $\alpha < 1/2$, there is a negative relationship between dividend yield and the value of R_c. Consequently, stocks with higher dividend yields have higher abnormal returns. Secondly, if $\alpha > 1/2$, dividend yield is positively related to the value of R_c. This leads to a negative relationship between dividend yield and abnormal return. Thirdly, if $\alpha = 1/2$, dividend yield and abnormal return have no association. However, according to Vietnamese institutional

environment, the transaction costs include brokerage fees for successful stock varing from 0,15% to 0,35% of transaction value and flat tax rate of selling price (if any). Hence, α is less than 50%. This indicates that if dividend capture investors are marginal traders on the ex-day, dividend yield is negatively related to abnormal return on the ex-day.

In consistence with Al-Yahyaee (2007); Dasilas and Leventis (2011); Kato et al. (1995); Roni Michaely (1996); Naranjo et al. (2000), we develop a regression model to investigate the relationship between dividend yield and abnormal return while controlling for the effects of stock liquidity, abnormal trading volume[2], firm size and dividend payment frequency. The regression model is presented as follows:

$$AR_0 = \beta_0 + \beta_1 DY + \beta_2 AVV + \beta_3 AV_0 + \beta_4 SIZ + \beta_5 YEA + \beta_6 SEM \qquad \text{(Eq.4.12)}$$

Where: AR_0 is the abnormal return on the ex-day. DY is dividend yield. AVV is average trading volume calculated from the estimation window of 30 observations from Day -40 to Day -11. AV_0 is the abnormal trading volume on the ex-day. SIZ is firm size measured by natural logarithm of market capitalization. YEA is a dummy variable assigned 1 if the dividend is paid annually, 0 otherwise. SEM is a dummy variable assigned 1 if the dividend is paid semi-annually, 0 otherwise.

4.5. Research data

4.5.1. Sample selection

Database for this study is provided by Tan Viet Securities Company (www.tvsi.com.vn) and cross-checked with Stockbiz's (www.stockbiz.vn). The sample period is from January 1st, 2006 to December 31st, 2011. To avoid bias in the research findings, observations are eliminated from the research sample if they meet the following criteria:

- Observations experiencing events, namely stock splits, stock dividends, share repurchases and right issues within 21 days from Day -10 to Day +10;
- Observations with missing or incomplete information including price data, trading volume data and dividends;
- Observations without transactions for more than 10 days in the estimation period.

[2] According to Karpoff and Walkling (1990); Lakonishok and Vermaelen (1986), stocks with higher liquidity tend to have higher abnormal returns if short-term trading activities are present on the ex-dividend day. Thus, in this study we use the average trading volume (AVV) to proxy for stock liquidity. On the other hand, when short-term traders affect the ex-day return, short-term trading exists on and around the ex-day (Dasilas & Leventis, 2011); therefore, abnormal trading volume (AV) tends to have a positive relationship with abnormal return on the ex-day.

After the above elimination, the research sample contains 781 observations. Following Milonas et al. (2006), we remove 3% of outliers including 1.5% of highest and 1.5% of lowest values of raw day price drop ratio (PDR_1). As a result, the final research sample includes 757 observations from 277 firms.

4.5.2. Descriptive statistics

Table 4.4. Descriptive statistics of dividend, dividend yield, price drop and price drop ratio

	DIV	DY	Pc-Pe	PDR_1	$APDR_1$	PDR_2	$APDR_2$
Panel A - Full sample, N = 757							
Mean	1.056	0.043	0.755	0.659	0.635	0.034	0.034
Median	1.000	0.036	0.600	0.667	0.749	0.028	0.027
St. deviation	0.566	0.029	1.288	1.204	1.051	0.043	0.040
1st-quartile	0.700	0.021	0.000	0.000	0.228	0.000	0.006
3rd-quartile	1.200	0.057	1.300	1.200	1.113	0.059	0.053
Panel B - Sub-sample 2006 - 2009, N = 332							
Mean	0.991	0.032	0.702	0.683	0.649	0.025	0.025
Median	0.900	0.024	0.600	0.667	0.810	0.021	0.021
St. deviation	0.535	0.022	1.585	1.505	1.260	0.039	0.033
1st-quartile	0.600	0.016	-0.100	-0.134	0.166	-0.005	0.004
3rd-quartile	1.200	0.042	1.500	1.500	1.204	0.050	0.041
Panel C - Sub-sample 2010 - 2011, N = 425							
Mean	1.107	0.052	0.796	0.641	0.624	0.041	0.040
Median	1.000	0.047	0.600	0.667	0.723	0.033	0.034
St. deviation	0.584	0.031	0.997	0.903	0.854	0.044	0.043
1st-quartile	0.700	0.029	0.200	0.250	0.263	0.009	0.010
3rd-quartile	1.347	0.066	1.200	1.083	1.075	0.066	0.061

Note: DIV is dividend per share in 1000 VND. DY is dividend yield calculated by dividend per share divided by cum-day price. P_c - P_e is the difference between cum-day price (P_c) and ex-day price (P_e). PDR_1 is unadjusted price drop to dividend ratio. $APDR_1$ is market-adjusted price drop to dividend ratio. PDR_2 is unadjusted price drop to cum-day price ratio. $APDR_2$ is market-adjusted price drop to cum-day price ratio.

Table 4.4 presents the descriptive statistics of dividend, dividend yield, price drop and four price drop ratios for the full sample of 757 observations (Panel A), the first sub-sample of 332 observations over the period from 2006 to 2009 (Panel B) and the second sub-sample of 425 observations during the period from 2010 to 2011 (Panel C). Panel A shows that the mean and the median of dividend are 1.056 and 1.000 while the corresponding measures of price drop on

the ex-dividend day are lower at 0.755 and 0.600 respectively. In addition, the mean (median) of price drop to dividend ratios raw and adjusted by daily market return (i.e. PDR_1 and $APDR_1$) which are 0.659 (0.667) and 0.635 (0.749) respectively also implies that price drop is smaller than dividend on the ex-day. The average value of price drop to dividend ratio in Vietnamese stock market is lower than that in the U.S. market which is 0.788 (K. J. Jakob & Ma, 2007) and higher than that in Hong Kong stock market which is 0.432 (Frank & Jagannathan, 1998). Moreover, the location measures of unadjusted ex-dividend day price drop to the last cum-day stock price ratio (PDR_2) and market-adjusted ex-dividend day price drop to the last cum-day stock price ratio ($APDR_2$) are smaller than those of dividend yield. This is consistent with the findings in Hong Kong stock market although average ex-dividend day price drop to the last cum-day stock price ratio and dividend yield in Vietnamese stock market are higher (Frank & Jagannathan, 1998).

Panel B and Panel C illustrate similar description that price drop is less than dividend. However, although the mean (median) of price drop (P_c - P_e) in the former is not smaller than in the latter, all of the price drop to dividend ratios namely PDR_1, $APDR_1$, PDR_2, $APDR_2$ in the first sub-sample are less than those in the second sub-sample partly due to the difference in dividend payment between the two sub-periods. One explanation is that from 2010 to 2011, under the impact of economic recession, there are less profitable business opportunities; therefore, firms tend pay more dividends to reduce free cash flows and prevent decreases in their stock prices.

4.6. Empirical findings

4.6.1. Ex-dividend stock price behavior

Table 4.5 shows the reaction of stock price on the ex-dividend day by comparing theoretical and observed values of mean and median for four variables including PDR_1, $APDR_1$, PDR_2 and $APDR_2$. Theoretical values of price drop to dividend ratios (i.e. PDR_1 and $APDR_1$) are one and those of price drop to cum-day price ratios (i.e. PDR_2 and $APDR_2$) are corresponding dividend yields. The differences between mean values of theoretical and observed values are tested by t-test whilst the differences between median values are tested by the non-parametric Wilcoxon signed rank test. It is clear that the observed values of mean PDR_1, $APDR_1$, PDR_2 and $APDR_2$ are less than their theoretical values at the significant level of 1% in the full sample and two sub-samples. In addition, the non-parametric test also illustrates that there are significant differences between the theoretical median values of price drop ratios and the observed median values at 1%. The high consistence in the results of t-test and Wilcoxon signed rank test

indicates that contrary to Miller & Modigliani's perfect market argument supporting the indifference between dividend payment and price drop on the ex-day, in this case investors are not indifferent between dividends and capital gains.

Table 4.5. Ex-dividend day stock price behavior

	Mean			Median		
	Theoretical value	Observed value	t-statistic	Theoretical value	Observed value	p-value
Panel A - Full sample, N = 757						
PDR_1	1.000	0.659***	-7.782	1.000	0.667***	0.000
$APDR_1$	1.000	0.635***	-9.553	1.000	0.749***	0.000
PDR_2	0.043	0.034***	-8.811	0.036	0.028***	0.000
$APDR_2$	0.043	0.034***	-11.547	0.036	0.027***	0.000
Panel B - Sub-sample 2006 - 2009, N = 332						
PDR_1	1.000	0.683***	-3.841	1.000	0.667***	0.000
$APDR_1$	1.000	0.649***	-5.078	1.000	0.81***	0.000
PDR_2	0.032	0.025***	-3.913	0.024	0.021***	0.000
$APDR_2$	0.032	0.025***	-5.792	0.024	0.021***	0.000
Panel C - Sub-sample 2010 - 2011, N = 425						
PDR_1	1.000	0.641***	-8.186	1.000	0.667***	0.000
$APDR_1$	1.000	0.624***	-9.068	1.000	0.723***	0.000
PDR_2	0.052	0.041***	-8.582	0.047	0.033***	0.000
$APDR_2$	0.052	0.040***	-10.227	0.047	0.034***	0.000

Note: PDR_1 is unadjusted price drop to dividend ratio. $APDR_1$ is market-adjusted price drop to dividend ratio. PDR_2 is unadjusted price drop to cum-day price ratio. $APDR_1$ is market-adjusted price drop to cum-day price ratio. *A significant difference from the theoretical value at the 10% level. ** A significant difference from the theoretical value at the 5% level. *** A significant difference from the theoretical value at the 1% level.

However, Table 4.3 shows that most of the expected price drop to dividend ratios under the impact of tax policy from 2006 to 2011 are equal to or greater that one. Only when individual investors who pay 0.01% of selling price without registering to pay 20% of capital gains are marginal traders from January 2010 to July 2011, the expected price drop to dividend ratio is equal to 95% whilst the mean price drop to dividend ratios (i.e. PDR_1 and $APDR_1$) varies from 60% to 70% in the full sample and two sub-samples. Therefore, we find that the tax treatment of dividends and capital gains is unable to explain the ex-dividend day stock price behavior in Vietnamese stock market. We continue to investigate effects of dividend capture trading on ex-day returns by examining stock price behavior around ex-dividend days.

Table 4.6 presents abnormal returns and cumulative abnormal returns around ex-dividend days calculated by both market model and mean adjusted model for the full sample and for two sub-samples. Panel A shows that in the full sample, abnormal returns are significantly positive on many days in the pre ex-day period and significantly negative on Day +1. In the sub-sample from 2006 to 2009, abnormal returns are positive at 1% of significance for both models on Day -5; however, abnormal returns in the post ex-dividend day period are not significantly different from zero despite their negative average values from Day +1 to Day +8. The sub-sample for the period between 2010 and 2011 gives similar results as shown in the full sample. Overall, these findings indicate that abnormal returns are positive before the ex-day and negative after the ex-day. Moreover, Panel A also illustrates that abnormal returns on the ex-day are highest in the event period and statistically significant at 1% for two measurement techniques in the full samples and both sub-samples. These results are in line with the findings presented in Table 4.5 which show that price drop is much lower than dividend payment on the ex-dividend day.

Table 4.6. Abnormal returns (%) and cumulative abnormal returns (%) around ex-dividend day

Day	Full sample (N = 757)		Sub-sample 2006 - 2009 (N = 332)		Sub-sample 2010 - 2011 (N = 425)	
	Market model	Mean adjusted	Market model	Mean adjusted	Market model	Mean adjusted
Panel A - Abnormal return (%)						
-10	-0.002	-0.005	0.010	0.062	-0.012	-0.057
-9	0.170**	0.215**	0.143	0.157	0.190*	0.261**
-8	0.176*	0.115	0.117	0.057	0.222*	0.161
-7	0.255***	0.243**	0.198	0.166	0.300***	0.303**
-6	0.251***	0.269***	0.212	0.304*	0.283**	0.242**
-5	0.393***	0.512***	0.491***	0.678***	0.317***	0.382***
-4	0.299***	0.220**	0.287**	0.192	0.308***	0.242**
-3	0.144	0.163	0.127	0.251	0.157	0.095
-2	0.182**	0.093	0.014	-0.027	0.313***	0.187
-1	0.014	0.018	-0.128	-0.029	0.125	0.054
0	0.934***	0.900***	0.520***	0.556***	1.257***	1.168***
1	-0.176**	-0.203*	-0.101	-0.085	-0.234**	-0.295**
2	-0.058	0.032	-0.108	0.038	-0.019	0.028

3	-0.134	-0.205*	-0.012	-0.041	-0.229**	-0.334***
4	-0.109	-0.115	-0.093	-0.092	-0.121	-0.132
5	-0.053	-0.096	-0.058	-0.060	-0.048	-0.125
6	-0.022	0.067	0.041	0.190	-0.072	-0.028
7	-0.037	-0.036	-0.109	-0.062	0.020	-0.016
8	0.037	0.007	-0.159	-0.207	0.191	0.174
9	0.009	-0.028	0.134	0.187	-0.089	-0.196
10	0.010	0.041	0.007	0.112	0.012	-0.015
Panel B - Cumulative abnormal return (%)						
CAR (-10 -1)	1.882***	1.844***	1.473***	1.812**	2.020***	1.868***
CAR (-4 -1)	0.639***	0.494**	0.301	0.388	0.090***	0.578**
CAR (-2 -1)	0.196	0.111	-0.113	-0.055	0.044***	0.241
CAR (+1 +2)	-0.234*	-0.171	-0.209	-0.048	-0.025	-0.267
CAR (+1 +4)	-0.477**	-0.491**	-0.315	-0.181	-0.060**	-0.733***
CAR (+1 +10)	-0.532*	-0.536	-0.460	-0.021	-0.059	-0.939**

Note: CAV is cumulative abnormal returns. *A significant difference from zero at the 10% level. **A significant difference from zero at the 5% level. ***A significant difference from zero at the 1% level.

In line with the findings presented in Panel A, Panel B shows that cumulative abnormal returns in the pre ex-day period namely CAR (-10 -1) and CAR (-4 -1) are statistically different from zero with the significant levels from 1% to 5% for the entire sample and for two sub-samples in both models. Cumulative abnormal returns are negative but not different from zero in the first sub-sample whilst cumulative abnormal return from Day +1 to Day +4 for both market model and mean-adjusted model is significantly negative in the second sub-sample.

However, positive abnormal returns in the pre ex-day period and negative abnormal returns in the post ex-day period are not sufficient to conclude that the ex-day behavior of stock price is consistent with dividend capture trading since stock abnormal returns are also determined by market liquidity. If market liquidity causes abnormal buying pressure before the ex-day, abnormal returns are positive and if it causes abnormal selling pressure after the ex-day, abnormal returns become negative. Therefore, we continue to investigate the applicability of dividend capture trading with trading volume behavior around the ex-day.

4.6.2. Ex-dividend trading volume behavior

Lakonishok and Vermaelen (1986) assert that trading volume is evidence to identify marginal investors affecting stock prices on ex-dividend days. Significantly positive abnormal trading volume both before and after the ex-dividend day is evidence supporting dividend capture trading activities and dividend capture traders are marginal investors in the stock market on the ex-day.

Table 4.7. Abnormal trading volume (%) and cumulative abnormal trading volume (%) around ex-dividend days. around ex-dividend days

Day	Full sample (N = 757)	Sub-sample 2006 - 2009 (N = 332)	Sub-sample 2010 - 2011 (N = 425)
Panel A - Abnormal trading volume (%)			
-10	0.082***	0.107**	0.063*
-9	0.043**	0.037	0.047*
-8	0.054**	0.051	0.056*
-7	0.060**	0.105**	0.025
-6	0.090**	0.113	0.072**
-5	0.098***	0.072*	0.118***
-4	0.092***	0.115***	0.075**
-3	0.098***	0.139***	0.066**
-2	0.112***	0.123**	0.103**
-1	0.140***	0.140***	0.141***
0	0.052**	0.035	0.066**
1	0.023	0.040	0.010
2	0.027	0.009	0.040
3	0.021	0.014	0.028
4	0.070*	0.107**	0.042
5	0.059**	0.072*	0.049
6	0.042	0.083	0.010
7	0.033	0.039	0.029
8	-0.011	0.025	0.000

9	0.027	0.033	0.022
10	0.047	0.097*	0.008
Panel B - Cumulative abnormal trading volume (%)			
CAV (-10 -1)	0.868***	1.000***	0.766***
CAV (-6 -1)	0.630***	0.701***	0.574***
CAV (-2 -1)	0.252***	0.262***	0.243***
CAV (-1 +1)	0.215***	0.214**	0.216**
CAV (+1 +2)	0.049	0.049***	0.050
CAV (+1 +6)	0.242*	0.324*	0.178
CAV (+1 +10)	0.338	0.467	0.237

Note: Abnormal trading volume is measured by mean adjusted model with the estimation window of 30 observations from Day -40 to Day -11. CAV is cumulative abnormal trading volume. *A significant difference from zero at the 10% level. **A significant difference from zero at the 5% level. ***A significant difference from zero at the 1% level.

Table 4.7 illustrates abnormal trading volume and cumulative abnormal trading around ex-dividend days. Panel A shows that in the full sample, significantly positive abnormal trading volume is present in the ten trading days before the ex-day and in two particular days after the ex-day (i.e. Day +4 and Day +5). Similarly, in the first sub-sample, there are seven days within pre ex-dividend period and three days in the post ex-dividend period experiencing significantly positive abnormal trading volume. In the second sub-sample, the evidence of abnormal trading volume in the period prior to the ex-day is consistent with buying pressure; however, the evidence abnormal trading volume of selling pressure in the post ex-day period appears mixed. Overall, the findings in the entire sample and two sub-samples imply that short-term trading activities exist both before and after the ex-day and support the hypothesis that investors buy stocks in the pre ex-day period and sell them in the post ex-day period.

One of explanations for the differences in ex-dividend trading volume behavior and stock price behavior in the two sub-samples is market liquidity which is measured by average trading volume calculated from the estimation window of 30 observations from Day -40 to Day -11. Table 4.8 shows that the mean of average trading volume of over the second period between 2010 and 2011 is lower than in the first period from 2006 to 2009 (0.358% vs. 0.503%) and their difference is statistically significant at 1% with t-test. Therefore, short-term investors who buy stocks before the ex-day find it more difficult to sell them after they go ex-dividend in the

second period. This leads to insignificantly positive abnormal trading and considerably lower and significantly less than zero abnormal returns after the ex-day (as showed in Table 4.6).

Panel B, Table 4.7 presents cumulative abnormal trading volume calculated by mean adjusted model around ex-dividend days. Consistent with Panel A, cumulative abnormal trading volume before the ex-dividend day is positive at the significant level of 1% and CAV (-1 +1) is also significantly different from zero in both the full sample and two sub-samples. For the post ex-day period, CAV (+1 +6) is positive at the significant level of 10% in the full sample and CAV (+1 +2) and CAV (+1 +6) are positive at the significant levels of 1% and 10% respectively in the first sub-sample. These results support the hypothesis of short-term trading activities around the ex-dividend day.

Table 4.8. Descriptive statistics for regression analysis

Variables	Median	Mean	St. deviation	1st quartile	3rd quartile
Panle A - Ful sample, N = 757					
AR_0 (%)	0.999	0.934	2.485	-0.515	2.618
DY	0.036	0.043	0.029	0.021	0.057
AVV (%)	0.219	0.422	0.591	0.094	0.521
AV_0 (%)	-0.024	0.052	0.651	-0.141	0.113
SIZ	19.742	20.030	1.360	19.067	20.733
YEA	1.000	0.597	0.491	0.000	1.000
SEM	0.000	0.316	0.465	0.000	1.000
Panle B -Sub-sample 2006 - 2009, N = 332					
AR_0 (%)	0.511	0.520	2.298	-0.955	1.982
DY	0.024	0.032	0.022	0.016	0.042
AVV (%)	0.269	0.503	0.675	0.142	0.570
AV_0 (%)	-0.026	0.035	0.643	-0.174	0.159
SIZ	19.741	20.007	1.394	19.007	20.722
YEA	1.000	0.539	0.499	0.000	1.000
SEM	0.000	0.328	0.470	0.000	1.000
Panle C - Sub-sample 2010 - 2011, N = 425					
AR_0 (%)	1.402	1.257	2.579	-0.248	2.955
DY	0.047	0.052	0.031	0.029	0.066
AVV (%)	0.171	0.358	0.508	0.066	0.433
AV_0 (%)	-0.022	0.066	0.657	-0.116	0.073
SIZ	19.751	20.048	1.335	19.120	20.742

YEA	1.000	0.642	0.480	0.000	1.000
SEM	0.000	0.306	0.461	0.000	1.000

Note: AR_0 is the abnormal return on the ex-day. DY is dividend yield. AVV is average trading volume calculated from the estimation window of 30 observations from Day -40 to Day -11. AV_0 is the abnormal trading volume on the ex-day. SIZ is firm size measured by natural logarithm of market capitalization. YEA is a dummy variable assigned 1 if dividends are paid annually. SEM is a dummy variable assigned 1 if the dividends are paid semi-annually.

4.6.3. The relationship between dividend yield and abnormal return

Table 4.8 shows summary statistics of variables in the regression model for full sample and both sub-samples. Panel A illustrates that mean and median ex-day abnormal returns (AR_0) of the full sample are 0.934% and 0.999% respectively and the standard deviation is extremely large, at 2.485%. This implies that the distribution of ex-day abnormal return witnesses an approximate symmetry but large variability. The average abnormal return on the ex-dividend day in Vietnamese stock market is much lower than that in the U.S market at 0.141% (K. J. Jakob & Ma, 2007). In addition, the average values of dividend yield (DY), average trading volume (AVV) and ex-day abnormal trading volume (AV_0) are 0.043, 0.422% and 0.052% respectively and their distribution is highly skewed and of considerable variability. Firm size's distribution has moderate skewness due to small difference between its mean and median (i.e. 20.030 and 19.742) and remarkably small standard deviation. Moreover, descriptive statistics illustrate that the first period constitutes 43.9% observations of the full sample. Like in the U.S and Japan, number of dividend payment per year in Vietnam is not limited. Table 4.8 illustrates that there are 59.7% and 31.6% of observations paying dividends annually and semi-annually respectively and 8.7% paying dividends more than two times per year. The percentage of observations with semi-annually basis in Vietnam is approximately half of that in Japan at 69% (Kato et al., 1995).

Panel B and Panel C show that average abnormal return and abnormal trading volume on the ex-day in the period from 2006 to 2009 are about half of those in the period from 2010 to 2011. This is consistent with Dasilas and Leventis (2011) positing that when the ex-day return is impacted by dividend capture traders, short-term trading exists on and around the ex-day and abnormal trading volume tends to be positively related to abnormal return on the ex-day. Moreover, the means values of average trading volume (AVV) and dividend yield (DY) in the first period (i.e. 0.503% and 0.032) are respectively higher and lower than corresponding measures in the second period (i.e. 0.358% and 0.052). One explanation is that under the impact of economic recession in the second period, stock market liquidity is lower, firms tend to pay

less dividends (as showed in Table 4.4) and stock prices tend to decrease (as showed in Figure 4.1).

Table 4.9. Regression results

Explanatory variables	Full sample		Sub-sample 2006 - 2009		Sub-sample 2010 - 2011	
	Coefficients	t-statistics	Coefficients	t-statistics	Coefficients	t-statistics
Intercept	2.332	1.550	0.158	0.080	6.999***	3.170
DY	-8.143**	-2.440	-12.538**	-1.990	-16.189***	-3.710
AVV	-0.194	-1.260	0.011	0.060	-0.309	-1.240
AV_0	0.266*	1.920	0.400**	2.020	0.143	0.750
SIZ	-0.082	-1.150	0.016	0.170	-0.265***	-2.600
YEA	0.674**	2.040	0.469	1.210	0.520	0.910
SEM	0.800**	2.320	0.500	1.210	0.634	1.080
Adj. R-squared	0.013		0.015		0.028	
F-statistics	2.68**		1.86*		3.07***	
Number of observations	757		332		425	

Note: The dependent variable is abnormal return on the ex-day (AR_0) measured by market model. DY is dividend yield. AVV is average trading volume calculated from the estimation window of 30 observations from Day -40 to Day -11. AV_0 is the abnormal trading volume on the ex-day. SIZ is firm size measured by natural logarithm of market capitalization. YEA is a dummy variable assigned 1 if dividends are paid annually. SEM is a dummy variable assigned 1 if the dividends are paid semi-annually. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 4.9 presents OLS regression results for the entire sample and for two sub-samples. The dependent variable is the ex-day abnormal return calculated by the market model. Dividend yield is negatively related to ex-day abnormal return at the significant level from 1% to 5% in the findings for the full sample and both sub-samples. These findings are contrary to the expected positive relationship between dividend yield and abnormal return on the ex-dividend day under the impact of taxation (See Section 4.3). In line with ex-dividend price and trading volume behavior, the significantly negative relationship between dividend yield and abnormal return implies that dividend capture investors are marginal traders on the ex-day and the round trip transaction cost α is smaller than 1/2 which is consistent with institutional environment of Vietnamese stock market (See Eq.4.11). In addition, in line with Dasilas and Leventis (2011); Lakonishok and Vermaelen (1986), the ex-day abnormal trading volume is significantly associated with ex-day abnormal returns on the ex-dividend day at 10% and 5% in the results for the full sample and the first sub-sample respectively. This is also supporting evidence for short-term trading activities. When short-term traders are marginal traders, they determine the

ex-day return and short-term trading activities concentrate on and around the ex-day. In that case, higher abnormal trading volume (AV_0) results in higher abnormal return on the ex-day.

4.7. Conclusion

This study investigates both abnormal returns and abnormal trading volume around the ex-dividend day in Vietnamese stock market that appears a promising laboratory due to its trading regulation and taxation based on the full sample of 757 observations. With the event study methodology, we are able to determine whether short-term traders are marginal investors in the ex-day. The findings show that abnormal returns are significantly positive and negative in the pre and the post ex-dividend day period. In addition, abnormal trading volume is positive before and after stocks go ex-dividend. These results indicate that investors buy stocks cum-dividend and sell them ex-dividend to capture dividend payment. Moreover, OLS regression analysis investigating the relationship between dividend yield and abnormal return on the ex-day is also used to confirm the impact of short-term traders on the ex-day stock price. The results show that dividend yield is negatively related to ex-day abnormal return. This implies that dividend capture traders are marginal investors on the ex-dividend day and the round trip transaction cost α is smaller than 1/2 which is consistent with the above-mentioned institutional environment. Furthermore, the positive relationship between abnormal trading volume and abnormal return on the ex-day is also supporting evidence for short-term trading activities.

Chapter 5: SHAREHOLDER RIGHTS, CREDITOR RIGHTS AND DIVIDEND POLICY: DOES THE GLOBAL FINANCIAL CRISIS MATTER?

5.1. Introduction

The impact of legal protection of shareholders and creditors on corporate financial decisions is a promising area of interdisciplinary research on law and finance. Supporting evidence of this impact on dividend policy is reported in the works of La Porta et al. (2000) and Brockman and Unlu (2009). In this study, we employ the global financial crisis as an exogenous shock to examine the effects of shareholder and creditor rights on dividend policy.

From the principal-agent relation proposed by M. C. Jensen and Meckling (1976), the agency theory is developed with two types of agency problems: the problem arising from conflicts among equity claimants and the problem arising from conflicts between debt and equity claimants (Brockman & Unlu, 2009). Therefore, there are two types of agency costs including agency costs of shareholders and agency costs of creditors. La Porta et al. (2000) initially study the relationship between agency costs of shareholders and dividend policy at country level with two competing agency models of dividends, namely the outcome model and the substitute model. The former model predicts that agency costs are lower and more cash dividends are paid when minority shareholder rights are stronger. In an alternate view, the latter model argues that dividends are paid as a means to reduce agency costs to earn a reputation of fair treatment of minority shareholders, hence weaker minority shareholder protection results in higher payout ratios. La Porta et al. (2000) find that the outcome model is supported empirically. In addition, Brockman and Unlu (2009) argue that dividend restrictions are a compensation for weak creditor protection under private credit agreements and they find supporting evidence of the substitute model based on agency costs of creditors.

This study posits that the global financial crisis is a good opportunity to test the two agency models of dividends since it leads to increases in both types of agency costs. Under the impact of a financial crisis, the available return on investment opportunities is lower and firms experience more external financial constraints. The former is likely to increase agency costs of equity with more severe expropriation of minority shareholders. The latter is likely to increase agency costs of debt since firms are less willing and able to earn the reputation of fair treatment of creditors. Moreover, firms are less willing to meet creditor demand to restrict dividends in

the post-crisis period since managers may use dividends to establish a good reputation on their business activities. This also leads to an increase in agency costs of debt.

We begin the study by examining the differences in the effects of shareholder and creditor rights on both dividend paying propensity and dividend magnitude across 41 countries between the pre-crisis period from 2003 to 2007 and the post-crisis period from 2008 to 2012. After firm characteristics including profitability, cash holdings, firm growth, debt ratio, asset tangibility, firm size and maturity are controlled, we find that the effects of both shareholder and creditor rights are weaker in the post-crisis period. These results suggest that both shareholders and creditors are expropriated more when both types of agency costs are higher. Furthermore, classifying countries by level of creditor protection and level of shareholder protection and replicating the regression models for each group of countries, we find that the decline in the effect of creditor rights (shareholder rights) on dividend policy is greater in the group of stronger shareholder (creditor) protection. This implies that the extent to which creditors (shareholders) are more expropriated is larger if shareholders (creditors) are sufficiently protected. In addition, our additional analyses with various measures of shareholder rights and creditor rights and additional country-level control variables including financial architecture and tax advantage of dividends also report consistent findings.

The remaining of this paper is organized as follows: Section 2 presents relevant literature review and develops research hypotheses, Section 3 shows research methodology, Section 4 reports empirical findings, Section 5 is additional analyses and Section 6 presents conclusions.

5.2. Literature review and research hypotheses

Agency theory is initially developed by Berle and Means (1932) to describe the impact of the gap between ownership and control on modern companies. M. C. Jensen and Meckling (1976) define agency relationship as an agreement under which agents perform some service on behalf of principals and posit that the principal-agent relation leads to agency costs. Later studies develop the agency model in broad terms with two kinds of interest conflicts: the conflicts of interest among equity claimants, and the conflicts of interest between equity and debt holders (Brockman & Unlu, 2009). Accordingly, there are two types of agency costs including agency costs of equity and agency costs of debt. The agency costs of equity are commonly utilized to explain incentive problems in corporate dividend policy at firm level. M. C. Jensen (1986) posit that excessive funds which are available to managers are a source of agency costs. If firms' cash flow exceeds that required to finance profitable business projects, corporate managers are motivated to invest in negative net present value projects. Therefore, firms pay cash dividend to

mitigate agency costs. Rozeff (1982) argues that corporate governance is a means to reduce agency costs and firms with strong corporate governance do not need to use dividend payment. Using a sample of 1000 listed firms in the U.S. from 1974 to 1980 with two variables including insider ownership and dispersion of ownership to measure agency problems between managers and shareholders, Rozeff (1982) finds that the former and the latter are negatively and positively associated with dividend payout ratios respectively. In addition, Holder et al. (1998) also find that both insider ownership and concentration of ownership have significantly negative effect on dividend payout ratios with a sample of 477 U.S. firms between 1983 and 1990.

Investigating the impact of minority shareholder rights on dividend policies around the world, La Porta et al. (2000) develop two opposite agency models including the outcome model and the substitute model. The former considers dividend payment as an outcome of effective legal protection of shareholders. When legal protection of shareholders is strong, outsiders use their legal rights to force insiders to pay dividends. In an alternative view, the substitute model argues that if firms want to raise external funds with favorable conditions, they must earn a reputation of fair treatment of shareholders. One way to establish a good reputation is reducing excessive free cash flow which is available to insiders in the form of dividend payment. Consequently, weaker minority shareholder protection results in higher payout ratios. Using a sample of 4,000 companies from 33 countries, La Porta et al. (2000) find that the outcome model is supported empirically. In addition, P. Jiraporn et al. (2011); Mitton (2004) find supporting evidence for supporting evidence for the outcome model based on agency cost of shareholders at firm level in the U.S market and 33 emerging markets. Furthermore, Brockman and Unlu (2009) extend the line of research at country level with an argument that country-level creditor protection also affects dividend policies. They claim that beside the reputation-building mechanism, dividend constraints are also determined by credit contracts. Under a legal regime of weak creditor protection, creditors tend to have stronger incentives to demand control over the corporate decision-making process via private credit agreements. Consequently, the two contracting parties are more likely to agreee on dividend restrictions as a compensation for poor creditor rights. Using a research sample of 120,507 observations across 52 countries, they find supporting evidence for the substitute model based on agency costs of debt. After firm characteristics and shareholder rights are controlled, creditor rights are positively related to both the likelihood of dividend payment and dividend amounts.

This study uses the global financial crisis as an exogenous shock to examine the changes in the effects of shareholder rights and creditor rights on dividend payout policy. On the one hand, the financial crisis reduces the available return on investment opportunities and insiders incur lower marginal costs of diverting resources away from positive net present value investment projects. Therefore, the expropriation of minority shareholders become more severe and agency costs of equity tend to increase (Johnson et al., 2000). Lemmon and Lins (2003) examining the impact of ownership structure on firm value during the East Asian financial crisis and also find that firms where managers and their families separate their control rights and cash flow ownership have lower cumulative stock returns than other firms. On the other hand, in the post-crisis period, firms experience external financial constraints. Campello, Graham, and Harvey (2010) survey Chief Financial Officers of 1050 firms in the U.S., Europe, and Asia about their investment plans during the global financial crisis of 2008 and find that firms with more financial constraints tend to plan deeper cuts in expenditures for technology employment, and capital. When firms are not able to raise external funds easily, they are not willing to establish a good reputation; therefore, agency conflicts between shareholders and creditors tend to increase. Moreover, under the impact of the financial crisis, there are less profitable investment opportunities and are more likely to use dividends as a means to establish good reputation on their business activities. As a result, they are less willing to meet creditor demand to restrict dividends as a substitute for weak creditor rights as suggested by Brockman and Unlu (2009). This also leads to an increase in agency costs of debt. When both types of agency costs increase, the outcome model based on agency costs of shareholders and the substitute model based on agency costs of creditors are hypothesized to become less effective in the post-crisis period than in the pre-crisis period.

Moreover, Shao et al. (2013) continue to examine the impact of power balance between equity and debt claimants on the optimal dividend policy around the world with the argument that optimal dividend policy is obtained when the marginal agency cost of equity is equal to the marginal agency cost of debt. When creditor rights are stronger, firms have more discretion to pay dividends as a substitute only if shareholder rights are sufficiently strong that firms are forced to disgorge free cash flows. Similarly, when shareholder rights are improved, firms tend to pay more dividends if they have flexibility to change dividend payment under strong creditor protection. With a sample of 139,168 observations collected from 39 countries from1991 to 2010, their empirical research shows that the substitute model (outcome model) is more effective when minority shareholders (creditors) are strongly protected. In this paper, we

develop an argument of this balancing strategy under the impact of the financial global crisis as follows: When agency problems become more severe, ceteris paribus, firms are more likely to decrease dividends paid as the substitute for weak creditor rights if minority shareholders are strongly protected by laws. However, if creditor rights are strong, ceteris paribus, they tend to decrease more dividends. As a result, we hypothesize that the decline in the effect of the substitute model (outcome model) is greater when legal protection of shareholders (creditors) is stronger.

5.3. Methodology

5.3.1. Research model

Following Brockman and Unlu (2009); Shao et al. (2013), we use logit and tobit regression models for the likelihood of paying dividends and dividend payout ratios respectively. To investigate the differences in the effects of shareholder and creditor rights on dividend policy across countries between the pre-crisis period 2003 - 2007 and the post-crisis period 2008 - 2012, we add interactive terms between each independent variable and the period dummy variable (PER) to both regression models. The period dummy variable takes the value of 1 for the post-crisis period and 0 otherwise. If the effects of shareholder and creditor protection on dividend policy are identical between the two periods, their interactive terms' coefficients are statistically insignificant.

The likelihood to pay dividends is a logit function as follows:

$$PAY = \alpha + \beta_1 PRO + \gamma_1 PRO*PER + \beta_2 CAS + \gamma_2 CAS*PER + \beta_3 GRO + \gamma_3 GRO*PER + \beta_4 DEB + \gamma_4 DEB*PER + \beta_5 TAN + \gamma_5 TAN*PER + \beta_6 SIZ + \gamma_6 SIZ*PER + \beta_7 ASD + \gamma_7 ASD*PER + \beta_8 CRE + \gamma_8 CRE*PER + \beta_9 LAW + \gamma_9 LAW*PER + \delta PER + \varepsilon \quad \text{(Eq.5.1)}$$

Where: PAY is 1 if firms pay dividends and 0 otherwise. Firm-level variables employed in this research are found to affect corporate dividend policy in many prior studies (Brockman & Unlu, 2009; DeAngelo et al., 2006; Eugene F. Fama & French, 2001; Shao et al., 2013): (1) profitability (PRO) is net income divided by total assets, (2) cash holdings (CAS) are measured by cash balance divided by total assets, (3) firm growth (GRO) is the ratio of current year's change in total assets, (4) debt ratio (DEB) is the ratio of long-term debt to total assets, (5) asset tangibility (TAN) is net property, plant and equipment scaled by total assets, (6) firm size (SIZ) is the natural logarithm of total assets measured in U.S. dollars, and (7) firm maturity (RET) is retained earnings to assets. Country-level variables include shareholder rights, creditor rights and a legal origin dummy. The shareholder rights are proxied by the anti-self-dealing index

(ASD) from Djankov et al. (2008). The anti-self-dealing index is measured by the first principal component of factors focusing on the strength of minority shareholder protection against the controlling shareholder's self-dealing (i.e. disclosure, approval, and litigation); therefore, it represents the pressure of disgorging cash on insiders (Shao et al., 2013). The creditor rights are proxied by the revised creditor right aggregate score (CRE) from Djankov et al. (2007). The legal origin dummy (LAW) takes 1 for civil law countries and 0 for common law countries.

The dividend payout ratio is a tobit function as follows:

$$DSA = \alpha + \beta_1 PRO + \gamma_1 PRO*PER + \beta_2 CAS + \gamma_2 CAS*PER + \beta_3 GRO + \gamma_3 GRO*PER + \beta_4 DEB + \gamma_4 DEB*PER + \beta_5 TAN + \gamma_5 TAN*PER + \beta_6 SIZ + \gamma_6 SIZ*PER + \beta_7 ASD + \gamma_7 ASD*PER + \beta_8 CRE + \gamma_8 CRE*PER + \beta_9 LAW + \gamma_9 LAW*PER + \delta PER + \varepsilon \quad \text{(Eq.5.2)}$$

Where: DSA is measured by total cash dividends scaled by sales (Brockman & Unlu, 2009; Shao et al., 2013). Sales are used instead of earnings as a deflator due to two reasons: Firstly, dividends to earnings ratio is not stable when earnings are low (Aivazian et al., 2003). Secondly, earnings management is various across countries under the impact of the strength of investor protection (Leuz, Nanda, & Wysocki, 2003). The core research findings persist with other measures of dividend payout ratio including dividends to earnings and dividends to total assets.

Furthermore, to examine the differences in the effects of creditor rights (shareholder rights) on dividend policy between the pre- and post-crisis periods by level of shareholder rights (creditor rights), in line with Shao et al. (2013) we replicate the regression models without the legal origin dummy and its interaction for two couples of sub-samples: (1) weak shareholder protection and strong shareholder protection; (2) weak creditor protection and strong creditor protection) and compare the interactive terms' coefficients in each couple. Countries with shareholder protection indices lower than or equal to the median are of weak shareholder protection, the others are of strong shareholder protection. Countries with creditor protection indices lower than the median are of weak shareholder protection, the others are of strong creditor protection.

All regression models include industry dummies, interactive terms between each industry dummy and the crisis period dummy to control industry effects. They are also clustered by firm to control within-firm correlated residuals. The expected signs for these firm-specific variables

are as follows: PRO (+), CAS (+/-)[3], GRO (-), DEB (+/-), TAN (+), SIZ (+) and RET (+). Dividends to sales (DSA) and all firm-level variables are winsorized at 5%.[4]

5.3.2. Data sources and sample selection

To construct the research sample, we collect annual financial and accounting information from Compustat Global and Compustat North America for firms incorporated in countries covered in La Porta, Lopez-De-Silanes, and Shleifer (2006). Then, we eliminate firm-year observations meeting the criteria as follows: (1) firms incorporated in countries with mandatory dividend payment, namely Brazil, Chile, Colombia, Greece, and Venezuela (La Porta et al., 2000), (2) firms in utilities industry (SIC codes 4900-4999) and financial sector (SIC codes 6000-6999) (Eugene F. Fama & French, 2001), (3) firms with multiple issues of common stocks (Ferris et al., 2009), (4) firms with unconsolidated financial statements (Mahajan & Tartaroglu, 2008), (5) firm-years with missing or incomplete information, (6) firm-years with abnormal data for subsequent analysis including negative net income, negative book equity, negative total assets and dividends greater than total assets. The final sample contains 133,279 firm-year observations from to 23,962 firms incorporated in 41 countries during the period from 2003 to 2012.

5.4. Empirical results

5.4.1. Summary statistics

Table 5.1 presents summary of descriptive statistics of the research sample including firm level data, annual number of observations, industry distribution and country-level data. Panel A shows that paying firms constitute a large proportion in the full sample with 65.79%. The paying proportion in the research sample is slightly higher than 64.4% in Brockman and Unlu (2009) and lower than 67.3% in Shao et al. (2013). The two sub-samples for the pre- and post-crisis periods contain similar number of firm-year observations (i.e. 66,996 and 66,283). In addition, the post-crisis period experiences lower profitability, firm growth and debt ratio and higher retained earnings and cash holdings than the pre-crisis period. This is consistent with the arguement that the global financial crisis reduces investment opportunities and the availability

[3] According to DeAngelo et al. (2006), the expected sign of cash holdings is ambiguous. Cash holding are high due to two causes including accumulated cash flows and the need to invest in future business opportunities. The former leads to high dividends but the latter results in low dividends.

[4] We also replicate the research with the sample winsorized at 3% and 10% and find that the statistical and economic significance of core variables is similar to the sample of 5% winsorization. This indicates that outliers fail to affect the research findings significantly.

of external funds. However, both the average paying proportion and the average payout ratio after the crisis are higher than before the crisis. There are only 13 countries and 12 countries experience lower likelihood of paying dividends and payout ratios respectively. This may be explained that firms are likely to pay dividends to establish a good business reputation in the post-crisis period. Moreover, the values of mean and standard deviation in the full sample and the two sub-samples by period are relatively consistent.

Table 5.1. Summary statistics

PAY is a binary variable which is equal to 1 if total paid dividends are greater than zero and 0 otherwise. DSA is total cash dividends scaled by sales. PRO is net income divided by total assets. CAS is cash balance divided by total assets. GRO is the ratio of current year's change in total assets. DEB is the ratio of long-term debt to total assets. TAN is net property, plant and equipment scaled by total assets. SIZ is the natural logarithm of total assets measured in U.S. dollars. RET is retained earnings to assets. ASD is anti-self-dealing index from Djankov et al. (2008). CRE is revised creditor right index from Djankov et al. (2007).

Panel A - Firm-level data

	Full sample		Pre-crisis period		Post-crisis period	
	Mean	SD	Mean	SD	Mean	SD
DSA (%)	2.35	2.26	2.25	2.20	2.44	2.31
PRO (%)	6.26	4.94	6.44	4.97	6.08	4.90
CAS (%)	14.73	13.38	14.20	13.32	15.26	13.42
GRW (%)	14.15	21.47	16.53	22.99	11.75	19.54
DEB (%)	10.94	12.04	11.29	12.17	10.60	11.89
TAN (%)	28.68	20.41	28.99	20.40	28.36	20.41
RET (%)	18.02	22.20	16.64	21.59	19.40	22.70
SIZ	12.27	1.83	12.17	1.83	12.37	1.83
Payers (%)	65.79		64.26		67.33	
No. of firms	133,279		66,996		66,283	

Panel B - Annual number of observations

Year	N	Year	N	Year	N	Year	N
2003	11,484	2006	14,417	2009	12,768	2012	13,363
2004	12,909	2007	14,324	2010	14,201		
2005	13,862	2008	12,317	2011	13,634		

Panel C - Industry Distribution

SIC industry definition	2-digit SIC	N	SIC industry definition	2-digit SIC	N
Mineral industries	10-14	6,554	Wholesale trade	50-51	7,440
Construction industries	15-17	4,893	Retail trade	52-59	8,125

Manufacturing	20-39	73,692	Service industries	>=70	24,467
Transportation, communications	40-48	8,108			

Panel D - Country-level data

Country	No. obs	No. firms	Payer (%)	DSA (%)	ASD	CRE
Argentina	349	53	53.87	1.75	0.34	1
Australia	4,483	1,036	64.98	3.05	0.76	3
Belgium	625	106	68.8	2.30	0.54	2
Canada	4,477	1,082	49.9	2.32	0.64	1
Hong Kong	1,233	210	68.21	3.29	0.96	4
India	15,938	2,434	61.39	1.16	0.58	2
Ireland	259	51	44.4	1.21	0.79	1
Israel	1,292	280	53.95	2.46	0.73	3
Kenya	177	30	78.53	3.65	0.21	4
Malaysia	5,545	921	72.01	2.62	0.95	3
New Zealand	586	100	80.89	3.80	0.95	4
Nigeria	364	62	84.07	3.38	0.43	4
Pakistan	1,248	228	83.17	2.36	0.41	1
Singapore	3,789	633	69.41	2.69	1.00	3
South Africa	1,768	291	66.01	2.29	0.81	3
Sri Lanka	986	179	73.83	2.26	0.39	2
Thailand	2,981	446	81.18	3.58	0.81	2
United Kingdom	6,911	1,414	67.85	2.12	0.95	4
United States of America	22,296	4,580	39.63	1.05	0.65	1
Common law median	1,292	280	68.21	2.36	0.73	3
Austria	444	72	71.4	1.64	0.21	3
Denmark	605	119	69.92	1.97	0.46	3
Egypt	225	70	79.11	5.22	0.20	2
Finland	772	122	86.79	3.34	0.46	1
France	3,845	644	68.97	1.63	0.38	0
Germany	3,556	647	55.93	1.43	0.28	3
Indonesia	1,865	325	54.91	1.75	0.65	2
Italy	1,066	211	72.14	2.28	0.42	2
Japan	22,226	3,339	90.43	0.93	0.50	1

Jordan	533	103	19.14	1.48	0.16	1
Mexico	600	93	60.33	2.14	0.17	0
Netherlands	888	154	69.14	1.68	0.20	3
Norway	918	205	54.36	2.17	0.42	2
Peru	530	71	63.58	3.44	0.45	0
Philippines	787	133	56.93	2.85	0.22	1
Portugal	284	49	69.01	2.22	0.44	1
South Korea	4,115	993	77.69	0.88	0.47	3
Spain	642	112	74.45	2.59	0.37	2
Sweden	1,945	370	64.94	2.42	0.33	1
Switzerland	1285	195	66.61	2.03	0.27	1
Taiwan	9,952	1611	71.35	3.05	0.56	2
Turkey	889	188	54.44	2.24	0.43	2
Civil law median	889	171	68.99	2.16	0.40	2
Sample median	1,066	205	68.80	2.28	0.45	2

Panel B reports number of firm observations by year. The number of firms included in the full sample rises significantly from 2003 and reaches a peak in 2006 with 14,417 firms. However, the figure remains steady at 14,324 firms and falls rapidly in 2008 by about 1,000 firms. These numbers are consistent with the booming period of stock market in the world before the global financial crisis and the start of the crisis in 2008. From 2009 to 2012, the number of firms varies from 12,700 to 14,300.

Panel C illustrates the number of firm-year observations by industry. In line with Brockman and Unlu (2009) and Shao et al. (2013), Manufacturing industry accounts for the largest proportion in the research data with 73,692 firms (55.29%), followed by Service industries with 24,467 firms (18.36%). Other industries contain from 4,500 to 8,500 firm-year observations, namely Construction industries (4,893), Mineral industries (6,554), Wholesale trade (7,440), Transportation and communications (8,108) and Retail trade (8,125).

Panel D presents the country-level data. The number of observations and firms varies considerably across countries. Five countries including U.S., Japan, India, Taiwan and U.K. constitute about 55.83% firms and 58.02% firm-year observations of the research data. This sample composition problem is present in many prior studies regardless of data providers. The number of firms in India and Taiwan in this study are higher than in Brockman and Unlu (2009)

and Shao et al. (2013) since Compustat Global database was expanded with more firms listed in Asian stock markets in 2007.

Furthermore, there are 19 common law countries and 22 civil law countries in the research data. Consistent with La Porta et al. (2000) and Brockman and Unlu (2009), the median payout ratio in common law group is higher than in civil law group although the former has a slightly lower paying proportion than the latter. Japan has the largest percentage of paying firms in the sample at 90.43%. Jordan experiences the lowest at only 19.14%, followed by U.S. with 39.63%. In addition, a wide range of the country-level shareholder and creditor rights across countries in the data is convenient to examine the effects of shareholder and creditor rights on dividend policy.

5.4.2. Differences in the effects of shareholder rights, creditor rights on dividend policy between the pre- and post-crisis periods

Table 5.2 reports regression results of dividend policy to compare the effects of shareholder rights, creditor rights between the pre-crisis period and the post-crisis period. In line with Brockman and Unlu (2009), these findings support the outcome model for the agency costs of equity and the substitute model for the agency costs of debt. The coefficients of variables measuring legal protection of shareholders and creditors are significantly positive. Remarkably, the interactive terms between the crisis period dummy (i.e. it takes 1 for the post-crisis period and 0 otherwise) and the two indices representing shareholder rights and creditor rights are negatively related to dividend policy in all regression results. These results indicate that the effects of shareholder rights and creditor rights on corporate dividend decisions are significantly weaker in the post-crisis period. Therefore, we accept the hypothesis that both the outcome model based on agency costs of equity and the substitute model based on agency costs of debt are less effective when agency costs increase under the impact of the global financial crisis.

Moreover, in line with Brockman and Unlu (2009); Eugene F. Fama and French (2001), the regression results illustrate that firms with higher profitability have higher propensity to pay dividends and dividend payout ratio in the two periods. The impact of profitability on dividend payment propensity and dividend payout ratio becomes stronger in the post-crisis period. One explanation is that firms maintain a steady stream of dividends or increase dividends to earn good reputation when the profitability is lower under the impact of financial crisis as showned in Panel A of Table 5.1. Cash holdings are negatively related to the probability of dividend payment. This indicates that firms holder more cash to finance future investment and are less likely to pay dividends (DeAngelo et al., 2006). In line with the transaction cost theory, both

firm growth and its interactive terms are negatively related to both dividend paying probability and payout ratio. To avoid significant transaction costs arising from external financing, firms with higher growth rate tend to retain more earnings for internal financing. Under the impact of the financial crisis, firms experience more financial constraint and they are less willing to pay dividends in the post-crisis period than in the pre-crisis period. Furthermore, the regression results show that firms with higher asset tangibility and larger size are more likely to pay dividends and have higher dividend payout ratios. This can be explained that firms with more tangible assets and larger size have easier access to capital markets; therefore, they incur lower transaction costs of external financing and pay more dividends. Similarly, debt ratio can be considered as a proxy of transaction costs, firms with higher debt ratios since they can raise external funds with lower costs and have higher payout ratios. Moreover, the life-cycle hypothesis of dividends is also supported with the significantly positive relationship between retained earnings to assets ratio and dividend policy. The differences in the effects of tangibility, debt ratio and retained earnings to assets between the pre- and post-crisis periods are insignificant.

Table 5.2. Differences in the effects of shareholder rights, creditor rights on dividend policy between the pre- and post-crisis periods

PAY is a binary variable which is equal to 1 if total paid dividends are greater than zero and 0 otherwise. DSA is total cash dividends scaled by sales. PRO is net income divided by total assets. CAS is cash balance divided by total assets. GRO is the ratio of current year's change in total assets. DEB is the ratio of long-term debt to total assets. TAN is net property, plant and equipment scaled by total assets. SIZ is the natural logarithm of total assets measured in U.S. dollars. RET is retained earnings to assets. ASD is anti-self-dealing index from Djankov et al. (2008). CRE is revised creditor right index from Djankov et al. (2007). LAW is the legal origin dummy which is assigned 1 for civil law countries and 0 for common law countries. PER is a dummy variable which takes the value of 1 for the post-crisis period. t-statistics are in parentheses. *** denotes significance at the 1% level. ** denotes significance at the 5% level. * denotes significance at the 10% level.

	Dependent variable = PAY	Dependent variable = DSA
Intercept	-5.5542***	-7.8921***
	(-37.85)	(-35.81)
PRO	0.0284***	0.2087***
	(09.18)	(38.56)
PRO*PER	0.0116***	0.0442***
	(03.01)	(07.33)
CAS	-0.0122***	0.0035
	(-09.60)	(01.61)
CAS*PER	0.0072***	0.0133***

	(04.95)	(05.57)
GRO	-0.0064***	-0.0207***
	(-12.92)	(-23.24)
GRO*PER	-0.0027***	-0.0074***
	(-03.74)	(-05.90)
DEB	0.0009	0.0106***
	(00.67)	(04.82)
DEB*PER	-0.0021	0.0027
	(-01.24)	(01.08)
TAN	0.0075***	0.0160***
	(08.37)	(11.01)
TAN*PER	0.0016	-0.0012
	(01.62)	(-00.79)
RET	0.0360***	0.0351***
	(42.28)	(29.64)
RET*PER	-0.0001	0.0006
	(-00.13)	(00.47)
SIZ	0.2838***	0.2895***
	(29.11)	(21.24)
SIZ*PER	0.0218**	0.0126
	(02.13)	(00.94)
ASD	1.3242***	2.1054***
	(10.46)	(10.94)
ASD*PER	-0.4115***	-0.3524*
	(-03.04)	(-01.90)
CRE	0.3243***	0.5833***
	(17.07)	(22.09)
CRE*PER	-0.0551***	-0.0884***
	(-02.65)	(-03.39)
LAW	1.3337***	1.2764***
	(29.49)	(18.79)
LAW*PER	-0.2315***	0.0410
	(-05.00)	(00.62)
PER	0.0850	0.1467
	(00.55)	(00.67)

Number of observations	133,279	133,279
Left censored		45,580

5.4.3. Differences in the effects of creditor rights on dividend policy between the pre- and post-crisis periods by level of shareholder rights

Shao et al. (2013) find that the relevance of the substitute model of the agency costs of debt relies on the quality of shareholder protection. Accordingly, we investigate how shareholder rights affect the differences in the effects of creditor rights on dividend policy between the pre- and post-crisis periods. Countries in the full sample are classified into two groups including weak shareholder protection (the anti-self-dealing index is lower than or equal to the sample median of 0.45) and strong shareholder protection (the anti-self-dealing index is higher than 0.45).

Table 5.3. Differences in the effects of creditor rights on dividend policy by level of shareholder rights between the pre- and post-crisis periods

PAY is a binary variable which is equal to 1 if total paid dividends are greater than zero and 0 otherwise. DSA is total cash dividends scaled by sales. PRO is net income divided by total assets. CAS is cash balance divided by total assets. GRO is the ratio of current year's change in total assets. DEB is the ratio of long-term debt to total assets. TAN is net property, plant and equipment scaled by total assets. SIZ is the natural logarithm of total assets measured in U.S. dollars. RET is retained earnings to assets. ASD is anti-self-dealing index from Djankov et al. (2008). CRE is revised creditor right index from Djankov et al. (2007). PER is a dummy variable which takes the value of 1 for the post-crisis period. t-statistics are in parentheses. *** denotes significance at the 1% level. ** denotes significance at the 5% level. * denotes significance at the 10% level.

	Below median shareholder rights (ASD ≤ 0.45)		Above median shareholder rights (ASD > 0.45)	
	Dependent variable = PAY	Dependent variable = DSA	Dependent variable = PAY	Dependent variable = DSA
Intercept	-5.5708***	-7.8451***	-4.7474***	-6.7674***
	(-18.92)	(-17.82)	(-31.25)	(-32.26)
PRO	0.0431***	0.2214***	0.0001	0.1708***
	(05.82)	(16.32)	(00.03)	(29.57)
PRO*PER	0.0208**	0.0481***	0.0136***	0.0408***
	(02.18)	(03.05)	(03.39)	(06.45)
CAS	-0.0012	0.0247***	-0.0058***	0.0099***
	(-00.40)	(04.40)	(-04.12)	(04.33)
CAS*PER	-0.0049	-0.0122*	0.0111***	0.0230***
	(-01.32)	(-01.86)	(07.10)	(09.24)
GRO	-0.0091***	-0.0234***	-0.0081***	-0.0226***

	(-07.96)	(-11.58)	(-15.55)	(-23.24)
GRO*PER	0.0024	-0.0021	-0.0038***	-0.0092***
	(01.41)	(-00.71)	(-05.07)	(-06.86)
DEB	-0.0005	-0.0007	-0.0098***	0.0015
	(-00.15)	(-00.12)	(-06.88)	(00.67)
DEB*PER	-0.0082**	-0.0039	0.0024	0.0064**
	(-01.98)	(-00.62)	(01.36)	(02.44)
TAN	0.0053***	0.0221***	0.0101***	0.0173***
	(02.65)	(06.32)	(10.21)	(11.03)
TAN*PER	0.0003	-0.0058	0.0018	0.0005
	(00.14)	(-01.62)	(01.60)	(00.31)
RET	0.0341***	0.0457***	0.0350***	0.0343***
	(14.58)	(13.92)	(38.17)	(27.17)
RET*PER	0.0003	0.0020	-0.0008	-0.0012
	(00.10)	(00.55)	(-00.81)	(-00.92)
SIZ	0.4387***	0.4710***	0.3269***	0.3265***
	(19.05)	(14.95)	(29.89)	(22.66)
SIZ*PER	-0.0386	-0.0073	0.0289***	0.0308**
	(-01.54)	(-00.22)	(02.56)	(02.20)
CRE	-0.0481	-0.0596	0.4090***	0.8390***
	(-01.54)	(-01.30)	(22.21)	(32.50)
CRE*PER	-0.0461	-0.0931**	-0.0475**	-0.0872***
	(-01.38)	(-02.00)	(-02.24)	(-03.34)
PER	0.6596**	1.0128**	-0.5028***	-0.5914***
	(02.03)	(02.17)	(-03.11)	(-02.85)
Number of observations	21,561	21,561	111,718	111,718
Left censored		7,618		37,962

Table 5.3 illustrates the effects of creditor rights on dividend policy between the pre- and post-crisis periods by level of shareholder rights. While the strong shareholder protection sub-sample experiences significantly positive coefficients of the revised creditor right index for both logit and tobit regression models, the corresponding coefficients of the weak shareholder protection group are not significant. These findings are in line with Shao et al. (2013), the substitute model based on agency costs of debt is more effective when shareholders are sufficiently protected. Remarkably, the interactive terms between the revised creditor right index and the crisis period

dummy variable in the strong shareholder protection group are both statistically and economically more significant than in the weak shareholder protection group. When minority shareholder expropriation becomes more severe under the impact of the global financial, insiders have more difficulties in expropriating minority shareholders if minority shareholders are strongly protected by laws. Therefore, insiders in strong shareholder protection countries tend to expropriate creditors more than those in weak shareholder protection countries.

5.4.4. The differences in the effects of shareholder rights on dividend policy between the pre- and post-crisis periods by level of creditor rights

In this section, we compare how creditor rights affect the differences in the effects of shareholder rights on dividend policy between the pre- and post-crisis periods. Countries with the revised creditor right index lower than the median value of 2 belong to the group of weak creditor protection and those with the revised creditor right index from 2 to 4 belong to the group of strong creditor protection.

Table 5.4. Differences in the effects of shareholder rights on dividend policy by level of creditor rights between the pre- and post-crisis periods

PAY is a binary variable which is equal to 1 if total paid dividends are greater than zero and 0 otherwise. DSA is total cash dividends scaled by sales. PRO is net income divided by total assets. CAS is cash balance divided by total assets. GRO is the ratio of current year's change in total assets. DEB is the ratio of long-term debt to total assets. TAN is net property, plant and equipment scaled by total assets. SIZ is the natural logarithm of total assets measured in U.S. dollars. RET is retained earnings to assets. ASD is anti-self-dealing index from Djankov et al. (2008). CRE is revised creditor right index from Djankov et al. (2007). PER is a dummy variable which takes the value of 1 for the post-crisis period. t-statistics are in parentheses. *** denotes significance at the 1% level. ** denotes significance at the 5% level. * denotes significance at the 10% level.

	Below median creditor rights (CRE < 2)		Above median creditor rights (CRE ≥ 2)	
	Dependent variable = PAY	Dependent variable = DSA	Dependent variable = PAY	Dependent variable = DSA
Intercept	-1.7399***	-2.2699***	-5.7268***	-8.3895***
	(-07.50)	(-07.89)	(-29.77)	(-30.34)
PRO	-0.0256***	0.1491***	0.0398***	0.1995***
	(-04.89)	(18.31)	(10.15)	(28.93)
PRO*PER	0.0106*	0.0482***	0.0238***	0.0364***
	(01.76)	(05.40)	(04.55)	(04.55)
CAS	-0.0043**	-0.0007	-0.0027	0.0276***
	(-02.18)	(-00.25)	(-01.61)	(09.19)
CAS*PER	0.0050**	0.0027	0.0106***	0.0220***
	(02.29)	(00.89)	(05.31)	(06.64)

GRO	-0.0134***	-0.0240***	-0.0057***	-0.0224***
	(-16.10)	(-16.37)	(-09.22)	(-20.43)
GRO*PER	-0.0051***	-0.0099***	-0.0019**	-0.0072***
	(-04.13)	(-04.59)	(-02.16)	(-04.80)
DEB	-0.0043**	0.0162***	-0.0052***	-0.0052*
	(-02.00)	(05.58)	(-03.07)	(-01.77)
DEB*PER	0.0026	0.0055	-0.0030	0.0014
	(00.97)	(01.57)	(-01.39)	(00.41)
TAN	0.0072***	0.0074***	0.0054***	0.0178***
	(04.85)	(03.66)	(04.86)	(09.05)
TAN*PER	0.0011	-0.0031	0.0026**	0.0009
	(00.70)	(-01.48)	(02.03)	(00.45)
RET	0.0342***	0.0294***	0.0382***	0.0441***
	(27.46)	(19.01)	(29.77)	(24.74)
RET*PER	-0.0029**	-0.0003	-0.0005	-0.0023
	(-02.26)	(-00.19)	(-00.34)	(-01.15)
SIZ	0.3664***	0.3011***	0.4497***	0.5252***
	(23.32)	(15.59)	(31.82)	(28.24)
SIZ*PER	-0.0225	0.0097	0.0316**	0.0045
	(-01.39)	(00.51)	(02.01)	(00.25)
ASD	-5.4236***	-5.4163***	0.6960***	1.8705***
	(-19.38)	(-18.51)	(07.44)	(13.03)
ASD*PER	0.3239	-0.4637	-0.3229***	-0.8022***
	(01.18)	(-01.58)	(-02.86)	(-05.43)
PER	0.0828	0.3549	-0.5337**	0.0367
	(00.36)	(01.18)	(-02.47)	(00.13)
Number of observations	61,436	61,436	71,843	71,843
Left censored		22,041		23,539

Table 5.4 shows the differences in the effects of shareholder rights on dividend policy between the pre- and post-crisis periods by level of creditor rights. Regression results show that the coefficients of the anti-self-dealing index of the strong creditor protection group are significantly positive while those of the weak creditor right group are significantly negative. This is consistent with Shao et al. (2013), the substitute model based on agency costs of equity is more effective when creditors are strongly protected. Interestingly, the interactive terms

between shareholder protection and the crisis period dummy variable in the strong creditor protection group are statistically negative while those in the weak creditor right group are not statistically significant. These findings imply that when agency costs are higher, the extent to which shareholders experience more expropriation is larger in the group of strong legal protection of creditors.

5.5. Additional analyses

Table 5.5. Additional analyses for the differences in the effects of shareholder rights, creditor rights on dividend policy between the pre- and post-crisis periods

PAY is a binary variable which is equal to 1 if total paid dividends are greater than zero and 0 otherwise. DSA is total cash dividends scaled by sales. CRE is revised creditor right index from Djankov et al. (2007). ASD is anti-self-dealing index from Djankov et al. (2008). LCR is original creditor right index is from La Porta et al. (1998). SAD is anti-director rights index from Spamann (2010). RAD is revised anti-director index from Djankov et al. (2008). PER is a dummy variable which takes the value of 1 for the post-crisis period. t-statistics are in parentheses. *** denotes significance at the 1% level. ** denotes significance at the 5% level. * denotes significance at the 10% level.

	Dependent variable = PAY	Dependent variable = DSA
Panel A - Regression results for the reduced sample (U.S., Japan, India, Taiwan and U.K. are excluded)		
ASD	0.8341***	0.0156***
	(05.44)	(05.89)
ASD*PER	-0.6756***	-0.0071***
	(-04.09)	(-02.78)
CRE	0.0965***	0.0001
	(04.01)	(00.25)
CRE*PER	-0.0677***	-0.0009**
	(-02.62)	(-02.43)
Panel B - Other measures of shareholder rights and creditor rights		
Creditor right is measured as original creditor right index		
ASD	1.4429***	0.0315***
	(12.75)	(16.70)
ASD*PER	-0.4120***	-0.0039**
	(-03.34)	(-02.17)
LCR	0.3741***	0.0036***
	(25.03)	(15.13)
LCR*PER	-0.0409***	-0.0012***
	(-02.61)	(-04.95)

Shareholder right is measured as Spamann's anti-director index		
SAD	0.7963***	0.0082***
	(36.06)	(25.87)
SAD*PER	0.0251	-0.0012***
	(01.07)	(-04.07)
CRE	0.2011***	0.0051***
	(11.82)	(20.91)
CRE*PER	-0.0549***	-0.0005*
	(-02.84)	(-01.89)
Shareholder right is measured as revised anti-director index		
RAD	0.6908***	0.0024***
	(34.35)	(08.07)
RAD*PER	-0.0919***	-0.0034***
	(-04.11)	(-11.61)
CRE	0.2005***	0.0066***
	(11.41)	(25.76)
CRE*PER	-0.0520***	-0.0001
	(-02.68)	(-00.48)
Panel C - Additional controls (Financial architecture index, Tax advantage of dividend and their interactive terms with the period dummy are added)		
ASD	3.7804***	0.0242***
	(23.22)	(11.53)
ASD*PER	-0.4779***	-0.0074***
	(-02.63)	(-03.52)
CRE	0.2053***	0.0030***
	(09.91)	(10.52)
CRE*PER	-0.0459**	-0.0007***
	(-01.98)	(-02.57)

In this section, we replicate regression models with the reduced sample, other measures of shareholder and creditor protection and additional control variables at country level for additional analyses. Table 5.5 presents further analysis for the differences in the effects of shareholder rights, creditor rights on dividend policy between the pre- and post-crisis periods. Panel A shows the estimation results for the reduce sample which is obtained from the full sample excluding U.S., Japan, India, Taiwan and U.K. The interactive terms of both shareholder right and creditor right indices are significantly positive in logit and tobit models

despite the insignificant coefficient of the revised creditor right index in the tobit model. These findings are consistent with those in the full sample. These results imply that the outcome model based on agency costs of shareholders and the substitute model based on agency costs of creditors become less effective in the post-crisis period than in the pre-crisis period regardless of the data composition problem.

In addition, we replicate the regression models for the full sample with other measures of creditor and shareholder protection. The measure of creditor right index is the original creditor right index (LCR) from La Porta et al. (1998). The original creditor right index and the revised creditor right index from Djankov et al. (2007) are measured with the same components but the former is more outdated. The measures of shareholder rights are two anti-director indices including the anti-director index (SAD) from Spamann (2010) and the revised anti-director index (RAD) from Djankov et al. (2008). The anti-director indices are criticized that they only predict financial outcome on the basis of investor protection measures across countries and fail to explicitly focus on self-dealing defined as the problem of investor expropriation (Djankov et al., 2008). Panel B of Table 5.5 illustrates that the overall regression results are consistent with our main findings mentioned above despite the insignificant coefficients of the interactive terms of Spamann's anti-director index (SAD) and the revised anti-director index (RAD) in the logit and tobit regression models respectively.

Table 5.6. Additional analyses for the differences in the effects of shareholder rights (creditor rights) on dividend policy by level of creditor rights (shareholder rights)

PAY is a binary variable which is equal to 1 if total paid dividends are greater than zero and 0 otherwise. DSA is total cash dividends scaled by sales. CRE is revised creditor right index from Djankov et al. (2007). ASD is anti-self-dealing index from Djankov et al. (2008). PER is a dummy variable which takes the value of 1 for the post-crisis period. Additional controls including financial architecture index, tax advantage of dividend and their interactive terms with the period dummy are added. t-statistics are in parentheses. *** denotes significance at the 1% level. ** denotes significance at the 5% level. * denotes significance at the 10% level.

Panel A - Differences in the effects of shareholder rights on dividend policy by level of creditor rights

	Below median shareholder rights (ASD ≤ 0.45)		Above median shareholder rights (ASD > 0.45)	
	Dependent variable = PAY	Dependent variable = DSA	Dependent variable = PAY	Dependent variable = DSA
Regression results for the reduced sample (U.S., Japan, India, Taiwan and U.K. are excluded)				
CRE	-0.0481	-0.0596	0.4024***	0.3948***
	(-01.54)	(-01.30)	(10.18)	(05.37)

CRE*PER	-0.0461	-0.0931**	-0.2332***	-0.2124***
	(-01.38)	(-02.00)	(-05.20)	(-03.01)
Additional controls (Financial architecture index, Tax advantage of dividend and their interactive terms with the period dummy are added)				
CRE	-0.1507***	-0.0022***	0.4407***	0.0050***
	(-04.19)	(-04.70)	(17.55)	(14.88)
CRE*PER	-0.0492	-0.0009*	-0.0486*	-0.0008**
	(-01.21)	(-01.69)	(-01.75)	(-02.26)

Panel B - Differences in the effects of creditor rights on dividend policy by level of shareholder rights

	Below median creditor rights (CRE < 2)		Above median creditor rights (CRE ≥ 2)	
	Dependent variable = PAY	Dependent variable = DSA	Dependent variable = PAY	Dependent variable = DSA
Regression results for the reduced sample (U.S., Japan, India, Taiwan and U.K. are excluded)				
ASD	-0.4636	0.4002	0.8605***	2.4641***
	(-01.49)	(00.69)	(07.71)	(13.30)
ASD*PER	0.6015*	-0.7664	-0.2490*	-0.7807***
	(01.75)	(-01.34)	(-01.93)	(-04.23)
Additional controls (Financial architecture index, Tax advantage of dividend and their interactive terms with the period dummy are added)				
ASD	-2.3810***	-0.0204***	1.1450***	0.0213***
	(-08.91)	(-05.31)	(07.81)	(10.52)
ASD*PER	0.8996***	-0.0049	-0.0551	-0.0063***
	(03.16)	(-01.32)	(-00.32)	(-02.89)

Moreover, prior studies show that the preferential tax treatment of dividends to capital gains and the financial structure also affects dividend policy across countries (La Porta et al., 2000). The tax policy with favorable treatment of dividends makes investors prefer a high dividend payout to a low dividend payout. Therefore, if firms want to maximize their shareholders' wealth, they should pay more dividends (Litzenberger & Ramaswamy, 1979). Besides, the financial structure in which the financial system is bank-based or market-based may play an important role in firms' access to funds under the impact of the financial crisis. As a result, we the regression models for the full sample with country-level control variables, namely the financial architecture index from Cy Kwok (2006) (higher values represent higher stock market

orientation of financial systems) and the preferential tax treatment of dividends to capital gains from La Porta et al. (2000). Panel C of Table 5.5 illustrates findings when the financial architecture index, the tax advantage of dividend index and their interactive terms with the period dummy are added. The core findings are mainly consistent with those presented in Section 5.4.2.

Table 5.6 presents additional analyses for the differences in the effects of creditor rights (shareholder rights) on dividend policy by level of shareholder rights (creditor rights) with the reduced sample and additional controls. In line with Shao et al. (2013), the coefficients of creditor rights (shareholder rights) are positive at 1% significance in the strong shareholder (creditor) protection group; however, they are insignificant or significantly positive in the weak shareholder (creditor) protection group. Overall, the interactive terms between creditor rights (shareholder rights) with the crisis period dummy are statistically and economically more significant when shareholders (creditors) experience stronger protection. These findings are consistent results with those presented in Section 5.4.3 and Section 5.4.4.

5.6. Conclusion

The impact of creditor and shareholder protection on dividend policy is one of promising area of interdisciplinary research on law and finance. La Porta et al. (2000) find empirical supporting evidence for the outcome model of the agency costs of equity. Brockman and Unlu (2009) find that the substitute model of the agency costs of debt is also effective after controlling shareholder rights and firm-specific variables. In this study, we use the global financial crisis as an exogenous shock which results in increases in both types of agency costs to examine the two agency models. Using a sample of 133,279 firm-year observations from 23,962 firms incorporated in 41 countries, we find that the effects of shareholder and creditor rights on dividend policy become weaker in the post-crisis period. This indicates that the outcome model based on agency costs of equity and the substitute model based on agency costs of debt become less effective when there are increases in both types of agency costs. Moreover, we find that the decrease in the effect of creditor rights (shareholder rights) on dividend policy between the pre- and post-crisis periods is more pronounced when shareholders (creditors) are strongly protected. These research resutls provide the following implications: Firstly, when both types of agency costs increase, both shareholders and creditors experience more expropriation and creditors (shareholders) experience more expropriation with larger extent in the group of strong legal protection of shareholders (creditors). Secondly, it is useful to employ an exogenous shock to test dividend theories. Finally, we can extend this line of research by investigating the

interaction between legal structure and firm-level corporate governance. Especially, we can examine whether firm-level corporate governance is a substitute of poor legal protection.

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Chapter 6: CONCLUSION

Dividend policy has a long history of development in corporate finance with various explanations. This PhD dissertation provides a new approach to investigate dividend policy, new evidence of dividend capture in a promising laboratory - Vietnamese stock market and new evidence of two agency models of dividends under the increases of agency costs of equity and debt.

The first essay examines dividend policy of firms listed in Vietnamese stock market with a two-step approach. Vietnamese stock market is newly established, hence the regulations and investors' experience to control the expropriation by insiders are likely incomplete. In addition, the market booms and crashes shortly over 3 years in the research period, this leads to rapid fluctuations in transaction costs of external financing and the need to signals outside investors by dividends. Besides, a large percentage of listed firms are state-controlled firms which are likely to experience "double principal-agent problem" (Gugler, 2003) and have higher demand of more cash dividends to finance other financially constrained state-controlled business projects (D. Chen et al., 2009). These characteristics are good conditions to test relevant theories of dividend policy. Furthermore, we argue that dividend policy is not just the decision of dividend amounts. It is a two-step decision making process including the decision to pay or not to pay and the decision of how much firms should pay after they decide to pay. On the other hand, from econometric perspective, dividend data is right-censored, OLS regression for the full sample of non-payers and payers or the subsample of payers results in selection bias. Consequently, this study examines both steps of dividend policy with Heckman two-step regression approach to fix the selection bias. The research findings show that consistent with Eugene F. Fama and French (2001), firms with higher profitability, larger size and lower and investment opportunities are more likely to pay dividends. In addition, firm maturity measured by retained earnings to equity ratio is positively related to the probability of paying dividends, this is consistent with the life cycle hypothesis suggested by DeAngelo et al. (2006). Moreover, in line with Banerjee et al. (2007) and Rozeff (1982), firms with higher stock liquidity (lower information asymmetry) and higher insider ownership (higher agency costs) are less likelihood to pay dividends respectively. State-controlled firms are more likely to pay dividends than non-state-controlled firms, this may be explained that state-controlled firms need funds to finance other financially constrained SOEs or public projects (D. Chen et al., 2009). Furthermore, the second step regressions show supporting evidence of the transaction cost theory that firms with

higher asset growth and market-to-book ratio tend to have lower dividend yields. Moreover, in line with the agency theory, insider ownership has a negative impact on dividend payout ratio. Contrary to free cash flow hypothesis, free cash flows to total assets ratio is negatively related to payout ratio, this can be explained by agency conflicts between managers and shareholder and firms' investment opportunities. The research results of this essay provide some implications for investors, firm managers and policy makers as follows: (1) Investors should be aware of the presence of insiders' expropriation to react and seek more effective mechanism to control this problem. If investors prefer dividend payment to capital gains, they should choose stocks of more mature and state-controlled firms; (2) Firm managers should retain more earnings to finance investment opportunities if firm liquidity is higher since transaction costs are significant. Higher liquidity implies lower information asymmetry, hence managers do not need to signal the market with dividend payment; (3) Policy makers in Vietnamese stock market should improve regulations to manage and control insiders' expropriation activities more effectively. Besides, this essay also contains limitations. The research period of 5 years is short. The data on corporate governance is not available. Moreover, this study only investigates dividend policy in one newly established stock market. Therefore, the understanding of dividend policy is not complete. Future research should examine dividend policy across newly established markets to find special feature of dividend policy in terms of corporate governance, state control or cross ownership.

The second essay investigates the behavior of stock prices on the ex-dividend in Vietnamese stock market and provides supporting evidence of the short-term trading to capture dividends. The extant literature shows that ex-dividend day anomaly of stock price can be explained by three groups of factors including taxation (Elton & Gruber, 1970), transaction costs (Kalay, 1982a) and market microstructure including limit order adjustment regulation (Dubofsky, 1992, 1997), bid-ask spread (Frank & Jagannathan, 1998) and price discreteness (Bali & Hite, 1998). This study finds that the trading regulations (i.e. periodic call auction to determine opening and closing prices, significantly small tick size and no market maker) make the existing microstructure theories ineffective to explain this anomaly in Vietnamese stock market. Moreover, Vietnamese tax policy shows no favorable treatment of capital gains to dividends and short-selling activities are prohibited under Vietnamese Security Law. With special features, Vietnamese stock market is a good environment to examine the ex-day stock price behavior. The research findings report that the observed mean and median values of both price drop to dividend ratios and price drop to cum-day price ratios are significantly less than their

theoretical values under parametric and non-parametric tests respectively. This implies that contrary to Miller & Modigliani's dividend irrelevance argument, in this case dividends lead to more-than-dividend price drops on the ex-dividend day. To find the explanation for this anomaly, we continue to compare the observed values of price drop to dividend ratios and its theoretical values under the impact of taxes suggested by Elton and Gruber (1970). The research results show that while all of the observed values are much lower than one, most of the theoretical values are equal to or greater that one. This is inconsistent with the tax clientele theory. Then, examining the behavior of abnormal returns and abnormal trading volume around the ex-dividend day with the event study methodology, we find supporting evidence of the dividend capture hypothesis as follows: (1) Abnormal returns are significantly positive and negative before and after stocks go ex-dividend. (2) Abnormal trading volume is positive around the ex-dividend day. In addition, this is confirmed by the significantly negatively relationship between dividend yield and the ex-day abnormal return, this relationship is consistent with the institutional environment in which the round trip transaction cost α is smaller than ½. These results indicate that investors prefer dividends and try to capture dividends by buying stocks cum-dividend and selling them ex-dividend regardless of different tax rates on dividends and capital gains. The research findings of this essay supply some implications for investors and policy makers as follows: (1) Investors should understand the mechanism of dividend capture activities in Vietnamese stock market to make right decisions on selling or buying their stocks to obtain profits; (2) Policy makers cannot use tax treatment of dividends and capital gains to create impact on dividend policy in Vietnamese stock market since marginal investors on the ex-dividend day are indifferent to tax treatment. Moreover, one limitation of this study lies at the methodology. We only use the ex-day stock price behavior to eliminate the explanations of the existing theories and find supporting evidence to support the dividend capture theory without seeking other explanations from the institutional environment of the stock market. In addition, this study shows that short-term dividend capture trading dominates the stock price behavior on the ex-dividend day but fails to investigate exactly which group of investors (e.g. foreign or domestic, institutional or individual investors) are marginal investors. In the future, this research should be extended to find the group of investors dominating the ex-day stock price behavior when data is available.

The third essay tests the two agency models of dividends, namely the outcome model based on agency costs of shareholders and the substitute model based on agency costs of creditors when agency costs increase under the impact of an exogenous shock. The extant literature of

international corporate governance shows both theoretical and empirical supporting evidence of the outcome model of the agency costs of equity and the substitute model based on agency costs of creditors (Brockman & Unlu, 2009; La Porta et al., 2000; Shao et al., 2013). This study argues that the global financial crisis is an exogenous shock leading to increases in both agency costs of shareholders and creditors. Therefore, this exogenous shock is hypothesized to make the two models of agency costs less effective. With a research data of 133,279 observations from 23,962 firms incorporated in 41 countries, we find that the legal protection of shareholders and creditors affects both the likelihood of paying dividends and dividend payout ratios in the pre-crisis period is less effectively than in the post-crisis period. This indicates that under the impact of the financial crisis, lower expected return on investment leads to lower marginal costs of insiders' expropriation; hence insiders tend to expropriate minority shareholders more severely. On the other hand, firms with more external financial constraints are less likely to pay dividends as the substitute of weak creditor rights. Besides, firms are also less likely to meet the demand of restricting dividends from creditors and tend to pay more dividends as a means to establish good reputation on their business activities. These results are consistent with the hypothesis that both agency models of dividend become less effective or both shareholders and creditors are expropriated more severely when both agency costs tend to increase. In addition, we also find that the decrease in the impact of legal protection of creditors (shareholders) on dividend policy between the pre- and post-crisis periods is larger in the group of strong shareholder (creditor) protection. This indicates that under the increases of both agency costs, ceteris paribus, creditors are more expropriated with greater extent if shareholders are sufficiently protected and creditors are more expropriated with greater extent if creditors are sufficiently protected. Moreover, additional analyses using the reduced sample which is the full sample excluding five large countries including U.S., Japan, India, Taiwan and U.K., various measures of shareholder rights and creditor rights and additional country-level control variables (i.e. financial architecture, tax advantage of dividends) show consistent findings. The research results of this essay provide some implications for shareholder, creditors and policy makers as follows: Shareholders and creditors should recognize that they are more expropriated under the impact of the global financial crisis or other exogenous shocks increasing the likelihood of expropriation and should react to this problem reasonably. In addition, when the expropriation becomes more severe, creditors (shareholders) should have more control and reaction to reduce the agency problem when shareholders (creditors) are protected sufficiently. Besides, policy makers should have more effective regulations to protect shareholders and creditors under the impact of financial crisis, especially when the legal protection of shareholders or creditors is

weak. Furthermore, this only focuses on the differences in the effects of shareholder and creditor rights on dividend policy between the pre- and post-crisis periods. Future research may continue to investigate the differences in the effect of corporate governance on dividend policy at firm level or the catering incentives on dividend policy or dividend smoothing behavior across countries under the impact of the global financial crisis.

In conclusion, the three essays present more understanding of dividend policy with different aspects. The first essay reports that at firm level, investors are less likely to receive dividends and receive lower dividends when they experience more expropriation by insiders and low information asymmetry. In addition, they are also less likely to gain dividends when firms are state-controlled or have higher investment opportunities, larger size and higher maturity. The second essay shows investors' preference of dividends in Vietnamese stock market with supporting evidence of dividend capture behavior around the ex-dividend day. The third essay indicates that increases in both agency costs of equity and debt lead to more expropriation of shareholders and creditors; this increase in expropriation of creditors (shareholders) is more severe if shareholders (creditors) have stronger legal protection.

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TROIS ESSAIS DE LA POLITIQUE DE DISTRIBUTION DE DIVIDENDES

Mots-clefs : politique de dividende, Heckman, ex-dividende, cours boursier, droits des créanciers, droits des actionnaires, crise financière

La politique de distribution de dividendes joue un rôle important dans la finance d'entreprise pour deux raisons : Premièrement, la proportion de profits payée sous forme de dividende est une des décisions financières essentielles du dirigeant d'entreprise. Deuxièmement, une compréhension adéquate de la politique de distribution de dividende est indispensable pour d'autres domaines de l'économie financière. En particulier, les théories d'évaluation des actifs financiers, de fusion-acquisition, de structure de capital et de décisions d'investissement dépendent de la façon et de la raison de la distribution de dividendes (Allen & Michaely, 1995). Dans son ouvrage classique, Black (1976) ne parvient pas à trouver un argument raisonnable pour expliquer la cause de la distribution de dividendes en espèces aux actionnaires et il considère dividendes comme un « puzzle ». Depuis lors, la politique de dividendes est intensément étudiée par les économistes financiers et elle devient un des sujets le plus discutables de la finance d'entreprise. Au début, Miller and Modigliani (1961) propose une théorie impertinente de la politique de dividendes en supposant que les marchés capitaux sont parfaits et complets. Pourtant, les études ultérieures trouvent que le marché n'est pas parfait et complet alors la politique de dividendes est affectée par la friction du marché, y compris l'asymétrie d'information, problèmes d'agence, les coûts de transaction, la maturité de l'entreprise, et impôts. Après, plusieurs théories discutent qu'il y a l'asymétrie d'information entre la gestion d'entreprise et les investisseurs extérieurs, le directeur utilise dividendes comme un signal de la profitabilité prévue de l'entreprise (Bhattacharya, 1979; Heinkel, 1978; John & Williams, 1985). La théorie d'agence concentre au conflit d'intérêt entre les gestionnaires et les actionnaires et estime que la distribution de dividendes est un dispositif afin d'atténuer les problèmes d'agence et de réduire les coûts d'agence (Easterbrook, 1984; M. C. Jensen, 1986; M. C. Jensen & Meckling, 1976). La théorie de coûts de transaction, de résidu, la théorie de la hiérarchie des préférences (pecking-order) soutiennent que les entreprises préfèrent financer les projets entrepreneuriaux par les bénéfices non distribués que le financement extérieur ; donc les entreprises ne veulent pas payer les dividendes quand ils ont des opportunités d'investir (Higgins, 1972; Stewart C. Myers & Nicholas S. Majluf, 1984; Rozeff, 1982; Weston & Brigham, 1979). Selon la théorie du cycle de vie, les entreprises matures et établies distribuent plus dividendes grâce aux ressources abondantes et réduisent les

projets d'investissements tandis que les jeunes entreprises avec des ressources limitées ont tendance à payer moins les dividendes pour financer les possibilités d'investissement (DeAngelo & DeAngelo, 2006; Grullon et al., 2002). La théorie de la clientèle d'impôt utilise la différence entre le taux d'impôt sur les gains en capital et les dividendes reçus pour expliquer la politique de dividende. Le traitement favorable des gains en capital à des dividendes rend les entreprises réduire dividendes afin de maximiser la richesse de leurs actionnaires (Litzenberger & Ramaswamy, 1979). En outre, la variation du cours de bourse à la date ex-dividende est également une anomalie. Nombreuses études concluent que la baisse du cours boursier à la date ex-dividende est inférieure au montant de dividende alors qu'il est supposé être égal au montant du dividende sous la théorie impertinente de dividendes. Cette anomalie est généralement expliquée par trois groupes de facteurs, y compris la fiscalité (Elton & Gruber, 1970), les coûts de transaction (Kalay, 1982a) et la microstructure du marché (Bali & Hite, 1998; Dubofsky, 1992; Frank & Jagannathan, 1998). De plus, il y a récemment la nouvelle tendance de recherche, à propos de gouvernance d'entreprise, qui se concentre sur la politique de dividendes entre les différents régimes juridiques. La politique de dividendes est examinée en utilisant une paire de modèle basé sur les coûts d'agence de capitaux propres et ceux de dette (Brockman & Unlu, 2009; La Porta et al., 2000). Le premier modèle prévoit que la distribution de dividendes est le résultat de la pression des actionnaires. En revanche, le deuxième modèle prédit que le payement de dividendes est comme un remplaçant à la faible protection des créanciers car les entreprises veulent construire une bonne réputation relative au traitement équitable et répondre à la demande des créanciers de restreindre de dividendes dans les contrats privés de crédit. Cette thèse de doctorat fournit de nouvelles preuves au sujet de théories mentionnées ci-dessus de la politique de dividendes avec trois essaies distincts comme suivant :

Le premier essai : Une approche en deux étapes pour étudier la politique de dividende: Evidence du marché boursier vietnamien

Le premier essai explore la politique de dividende au marché boursier vietnamien avec une approche en deux étapes. Cette étude choisit le marché boursier vietnamien pour examiner la politique de dividende pour trois raisons suivantes: (1) Il est un marché qui est créé récemment et ses règlements et l'expérience des investisseurs de contrôler les problèmes d'agence sont probablement incomplètes, il est donc un bon environnement pour étudier la théorie de l'agence. (2) Avec les courtes périodes florissantes et effondrées, les coûts de transaction de la mobilisation de fonds extérieurs et la nécessité d'utiliser les dividendes comme des signaux à des investisseurs extérieurs varient rapidement. Par conséquent, tester la théorie des coûts de

transaction et la théorie de signalisation de dividendes est plus approprié; (3) Les entreprises contrôlées par l'Etat représentent un grand pourcentage dans les entreprises cotées, ce sera l'occasion d'examiner la politique de dividende sous l'effet du contrôle de l'Etat qui est approprié au "problème de principal-agent» (Gugler, 2003) et la demande de plus d'argent pour financer les entreprises d'Etat ayant des contraintes financières ou les projets publics (D. Chen et al., 2009). Par ailleurs, nous argumentons que la politique de dividendes n'est pas simplement la décision de la proportion de bénéfices que les entreprises doivent distribuer en espèces. La politique de dividendes est un processus compliqué avec deux étapes : la décision de payer ou ne pas payer et celle de distribution de dividendes. En outre, au point de vue économétrique, le biais de sélection se pose lorsque la régression OLS est utilisée pour l'échantillon complet des non-payeurs et des payeurs ou le sous-échantillon des payeurs puisque les dividendes sont continus a la droite de zéro. Par conséquent, cette étude examine la politique de dividendes du marché boursier vietnamien en approchant la régression de deux étapes de Heckman qui règle le biais de sélection. Cette étude est commencée par examiner les facteurs qui influent sur la probabilité de distribution de dividendes, à savoir la rentabilité, la taille de l'entreprise, les opportunités d'investissement, la composition du capital gagné/ contribué, la liquidité, la propriété d'initiés et le control de l'Etat. Ensuite, nous examinons les impacts des opportunités d'investissement, la liquidité du titre, les flux de trésorerie disponible, la propriété d'initiés sur la magnitude de dividende mesurée par le ratio de distribution de dividende et le rendement de dividende. L'échantillon de l'étude se compose de 1 339 observations d'Ho Chi Minh Stock Exchange (HSX) et Ha Noi Stock Exchange (HNX) pendant la période 2006-2011.

La première étape du modèle de régression de Heckman présente la relation entre les caractéristiques de l'entreprise et la probabilité de distribution de dividendes. Conformément à Denis et Osobov (2008); Eugene F. Fama et French (2001), le ratio market-to-book, une mesure des opportunités d'investissement, est en relation négative avec la probabilité de la distribution de dividendes alors que la rentabilité et la taille de l'entreprise ont un impact positif sur la probabilité de distribution de dividendes. Les entreprises préfèrent le financement interne au financement externe; c'est pourquoi, il est peu probable que les entreprises payent dividendes quand ils possèdent plus de possibilités d'investissement. En outre, les entreprises dont la rentabilité est plus élevée sont plus probables d'avoir des flux de trésorerie résiduel après avoir financé leurs projets d'investissement ; ils sont donc plus probables de payer dividendes. D'ailleurs, les grandes entreprises peuvent mobiliser des fonds externes pour financer

facilement les opportunités d'investissement sur le marché financier car ils sont bien établis et ils ont une bonne réputation (Chang & Rhee, 1990; Holder et al., 1998). Cela implique que les grandes entreprises supportent des coûts de transaction moins élevés en utilisant le financement extérieur et sont plus probables de payer dividendes.

De plus, la composition du capital gagné/ contribué est positivement associée à la probabilité de distribuer dividendes au seuil de signification de 1%. En ligne avec DeAngelo et al. (2006); Grullon et al. (2002), les entreprises plus matures avec la composition du capital gagné / contribué supérieure sont plus probables d'avoir des flux de trésorerie résiduel alors ils sont plus probables de payer dividendes. La relation négative significative entre le taux annuel de rotation de l'action et le ratio de distribution est peut être expliquée par le mécanisme de signalisation. La liquidité plus élevée indique que les entreprises éprouvent de niveaux de l'asymétrie d'information inférieurs entre les investisseurs externes et les initiés. Par conséquent, ils ont moins tendance à distribuer dividendes comme un signal de la qualité de l'entreprise. En outre, la corrélation négative entre la rétention des initiés et la probabilité de paiement de dividendes implique qu'il existe des conflits d'intérêts entre les gestionnaires et les actionnaires. Lorsque la séparation de la propriété de l'entreprise est plus élevée, les gestionnaires ont tendance à utiliser les flux de trésorerie disponible pour maximiser leur propre intérêt au lieu de la richesse des actionnaires (MC Jensen & Meckling, 1976). C'est pourquoi, les entreprises sont plus probables de devenir les non-payeurs. Les entreprises contrôlées par l'Etat sont plus probables de distribuer dividendes car ils ont besoin de fonds pour supporter d'autres SOEs qui ont des contraintes financières et pour financer des projets publics afin d'atteindre les objectifs politiques (D. Chen et al., 2009).

La deuxième étape du modèle de régression de Heckman illustre la relation entre les caractéristiques de l'entreprise et les ratios de distribution avec les deux variables muettes de l'année et de l'industrie. Deux mesures d'opportunités d'investissement, y compris la croissance de l'actif et le ratio market-to-book sont en relation négative avec le rendement de dividendes à des niveaux significatifs de 5% et 1% respectivement. Si les entreprises ont plus d'opportunités d'investissement, ils conservent plus de revenus pour le financement interne et leurs actions sont évalues au prix plus élevés en raison de l'attente des investisseurs sur les perspectives de l'entreprise. C'est pourquoi, les entreprises qui possèdent plus d'opportunités d'investissement ont tendance à avoir des rendements de dividendes inférieurs. En outre, l'effet de levier est inversement proportionnel au ratio de distribution de dividendes au niveau significatif de 1% alors qu'il a une relation positive avec un rendement de dividende au niveau

significatif de 5%. Le premier implique que les entreprises avec un niveau d'endettement plus élevé ont besoin de plus bénéfices non distribués pour le financement interne, ils donc distribuent dividendes par une proportion de bénéfice plus faible. Le deuxième explique que les entreprises avec un ratio d'endettement plus élevé sont exposées à un risque de faillite plus élevé, par conséquent, les investisseurs exigent des rendements d'action plus élevés et les évaluent à des prix inférieurs qui conduisent à des niveaux de rendement de dividendes supérieurs.

Le ratio de flux de trésorerie disponible sur l'actif total est notamment en relation inverse avec le ratio de distribution de dividendes au seuil de signification de 1%. Ce fait est opposé à l'hypothèse de flux de trésorerie disponible et s'explique par deux raisons : Premièrement, il y a des conflits entre les gestionnaires et les actionnaires, c'est pourquoi, les gestionnaires détiennent plus de flux de trésorerie disponible afin de maximiser leur intérêt personnel. Deuxièmement, les entreprises ont tendance à garder plus de flux de trésorerie disponible pour financer les activités de l'entreprise et à payer moins dividendes. Cela correspond à la relation négative entre l'opportunité d'investissement et le niveau de dividendes. En outre, la propriété d'initié a un impact négatif sur le ratio de distribution de dividendes au niveau significatif de 5%. Ce résultat est cohérant à la recherche de Holder et al. (1998); Rozeff (1982). Lorsque la séparation entre la propriété et la gestion est plus grande, les gestionnaires ont tendance à prendre des décisions d'affaires pour son intérêt personnel au lieu de la richesse des propriétaires et distribuent moins de dividendes afin d'augmenter le flux de trésorerie disponible.

Ces résultats de recherche montrent les implications suivantes pour le marché boursier du Vietnam : (1) Les investisseurs sont plus expropriés dans les entreprises où il existe la propriété d'initié plus élevée ; (2) les investisseurs ont tendance à recevoir moindres dividendes comme un signal de la rentabilité attendue lorsque l'asymétrie d'information est plus faible ; (3) les investisseurs dans les entreprises contrôlées par l'Etat sont plus probables de recevoir des dividendes que les autres. En outre, ils sont moins probables de recevoir dividendes lorsque les entreprises ont des possibilités d'investissement plus élevées, de plus grande taille et d'un niveau de maturité supérieur.

Le deuxième essai : Nouvelle preuve de la capture de dividende à la date ex-dividende

Le deuxième essai fournit de nouvelles preuves de la capture de dividende le jour ex-dividende malgré les preuves discutables de cette anomalie. La littérature existante montre que l'anomalie du prix des actions au jour ex-dividende peut être s'explique par trois groupes de facteurs, y

compris la fiscalité, les coûts de transaction et la microstructure du marché. Elton et Gruber (1970) ont initialement proposé la théorie de la clientèle d'impôt qui indique que le comportement d'actions ordinaires d'une entreprise à ce jour doit être associé à des taux marginaux d'imposition de ses actionnaires. Un investisseur qui vend ses bourses avant ce jour perd le droit de recevoir dividendes. Cependant, s'il les détient jusqu'au jour ex-dividende, il s'attend à les vendre à un prix inférieur à cause de la rétention de dividendes. Au sujet de cette analyse, le ratio de la baisse de prix sur dividende reflète toujours les taux marginaux d'imposition relatif de dividendes et de gain en capital. Pourtant, Kalay (1982b) argumente que, en l'absence de l'effet de la clientèle de l'impôt, il y a des investisseurs dont le moment de la vente et de la transaction sont différents à cause de dividendes. Si la dépasse de la baisse prévue de prix le jour ex-dividende par rapport au dividende est supérieur aux coûts d'achat et de vente d'actions, les investisseurs pourraient vendre à découvert leurs stocks les jours où les dividendes sont encore attachés et les racheter quand ils arrivent à ex-dividende afin de réaliser des bénéfices. D'autre part, si la dépasse de la baisse prévue de prix le jour ex-dividende par rapport au dividende par action est supérieur aux coûts de transaction, les investisseurs ont tendance à acheter des actions les jours cum-dividende et les vendre les jours ex-dividende pour obtenir les bénéfices. Par conséquent, le bénéfice ne se réalise que s'il n'a pas exploité par des activités d'arbitrage et l'écart entre la baisse de prix et le montant du dividende est des coûts de transaction. Les théories de la microstructure du marché argumente que les caractéristiques de l'environnement institutionnel, le ratio de la baisse de prix sur dividende qui est inférieur à un le jour ex-dividende est expliqué par : l'arrondissage vers le bas du prix des ordres limites d'achat existants à un multiple de tique (Dubofsky, 1992, 1997) ; (2) l'écart du cours d'achat le jour cum-dividende et du cours de vente le jour ex-dividende (Frank & Jagannathan, 1998) et (3) la discrétion de prix (Bali et Hite, 1998). Cette étude trouve que le marché boursier vietnamien est un laboratoire plein de promesse pour étudier le comportement du cours boursier le jour ex-dividende en raison de ses caractéristiques particulières. Tout d'abord, le marché utilise le mécanisme de vente périodique aux enchères pour déterminer le prix d'ouverture et de clôture et il n'y a pas de teneur de marché. Deuxièmement, la taille de la tique est beaucoup plus petite que le montant de dividende. Ceux-ci impliquent les théories de microstructure et de marché basés sur l'écart acheteur-vendeur et la taille de la tique ne sont pas les explications applicables. Troisièmement, il n'y a pas beaucoup de traitement préférentiel des gains en capital à des dividendes et c'est contrairement à la taxation des gains en capital et des dividendes dans les autres marchés. Enfin, la vente à découvert est interdite.

Comme les études antérieures, nous vérifions à la fois le comportement du cours boursier et le volume de transaction autour du jour ex-dividende en utilisant la méthodologie de l'étude de cas afin de déterminer si les traders à court-terme sont des investisseurs marginaux à l'ex-jour. Le comportement de cours boursier est d'abord et couramment utilisé mais il n'est pas assez pour trouver des investisseurs marginaux à cause d'autres facteurs (par exemple : les impôts, la liquidité du marché). En outre, le volume de transaction est donc utilisé (Lakonishok & Vermaelen, 1986). De plus, une analyse de régression OLS qui examine la relation entre le rendement de dividendes et le rendement anormal à l'ex-jour est également utilisée afin de trouver des preuves des traders marginaux. Pour but de tester la robustesse des résultats de la recherche, nous divisons l'échantillon complet en deux sous-échantillons en basant du changement de la politique fiscale. Le premier sous-échantillon est de 2006 à 2009 et le deuxième sous-échantillon est de 2010 à 2011.

Les résultats de la recherche montrent que les ratios de la baisse moyenne observée de prix sur dividende et les ratios de la baisse de prix sur le prix à cum-jour sont inférieurs aux valeurs théoriques au seuil significatif de 1% dans l'échantillon complet et dans les deux sous-échantillons. De plus, le test non-paramétrique illustre également qu'il existe des différences significatives entre les médianes théoriques des ratios de la baisse de prix et les médianes observées à 1%. La forte consistance des résultats de t-test et « Wilcoxon-signed rank test » indique qu'il est contraire à l'argument de marché parfait de Miller et Modigliani qui supportent l'indifférence entre le paiement de dividende et la baisse de prix à l'ex-jour, dans ce cas, les investisseurs ne sont pas indifférents entre les dividendes et les gains en capital. Cependant, sous l'impact de la politique fiscale 2006-2011, la plupart des ratios attendus de la baisse de prix sur dividende doit être égale ou supérieure à un. C'est pourquoi, nous constatons que le traitement fiscal de dividendes et de gains en capital est incapable à expliquer le comportement du cours boursier le jour ex-dividende au marché boursier du Vietnam. Nous continuons à étudier les effets de la capture de dividende sur les rendements à l'ex-jour en examinant le comportement du cours boursier autour des jours ex-dividende. Dans l'échantillon complet, les résultats de la recherche indiquent que les rendements anormaux sont significativement positifs aux plusieurs jours pendant la période avant ex-jour et significativement négatif au jour + 1. Dans le sous-échantillon de 2006 à 2009, les rendements anormaux sont positifs au seuil significatif de 1% pour les deux modèles au Jour – 5 ; toutefois, les rendements anormaux pendant la période après le jour ex-dividende ne sont pas significativement différents de zéro malgré leurs valeurs moyennes négatives de Jour + 1 à Jour + 8. Le sous-échantillon de la

période de 2010 à 2011 donne des résultats similaires à ceux indiqués dans l'échantillon complet. En général, ces résultats indiquent que les rendements anormaux sont positifs avant l'ex-jour et négatif après l'ex-jour. En outre, les rendements anormaux à l'ex-jour sont les plus élevés pendant la période de l'événement et statistiquement significatifs à 1% dans l'échantillon complet ainsi que dans les deux sous-échantillons. D'ailleurs, les rendements anormaux cumulatifs de la période avant l'ex-jour, à savoir le CAR (-10 -1) et le CAR (-4 – 1) sont statistiquement différents de zéro avec les seuils significatifs de 1% et 5% pour l'échantillon complet et pour les deux sous-échantillons en utilisant les deux modèles. Les rendements anormaux cumulés sont négatifs mais ils ne sont pas différents de zéro dans le premier sous-échantillon tandis que le rendement anormal cumulé de Jour + 1 à Jour + 4 en utilisant le modèle de marché et le modèle nommé moyenne ajustée est significativement négatif dans le deuxième sous-échantillon. Ces résultats sont en ligne avec les conclusions que la baisse de prix est beaucoup plus faible que le dividende le jour ex-dividende.

Toutefois, les rendements anormaux positifs durant la période avant l'ex-jour et les rendements anormaux négatifs durant la période après l'ex-jour ne sont pas suffisants à conclure que le comportement du cours boursier à l'ex-jour est cohérent à la capture de dividende parce que les rendements boursiers anormaux sont également déterminés par la liquidité du marché. Si la liquidité du marché provoque une pression anormale d'achat avant l'ex-jour, les rendements anormaux sont positifs et s'il provoque une pression anormale de vente avant l'ex-jour, les rendements anormaux deviennent négatifs. C'est pourquoi, nous continuons à examiner l'applicabilité de la capture de dividende avec le comportement du volume de transaction autour de l'ex-jour. Dans l'échantillon complet, le volume de transaction anormal qui est significativement positif présente pendant les dix jours de transaction avant la date ex-dividende et aussi pendant les deux jours particuliers après l'ex-dividende (c'est Jour + 4 et Jour + 5). De même, dans le premier sous-échantillon, il y a sept jours de la période avant l'ex-jour et trois jours de la période après l'ex-jour qui éprouvent le volume de transaction anormal positif. Dans le deuxième sous-échantillon, la preuve du volume de transaction anormal de la période avant l'ex-jour est cohérente à la pression d'achat ; toutefois, la preuve du volume de transaction anormal de la pression de vente apparaît variée. En général, les conclusions de l'échantillon complet et les deux sous-échantillons impliquent que les activités de transaction à court- terme existent à la fois avant et après l'ex-jour et soutiennent l'hypothèse que les investisseurs achètent les actions pendant la période avant l'ex-jour et les vendent pendant la période après l'ex-jour.

Une des explications pour les différences du comportement de volume de transaction et du cours boursier à l'ex-jour dans les deux sous-échantillons est la liquidité du marché qui est mesurée par le volume de transaction moyen calculé à partir de la période d'estimation de 30 observations de Jour – 40 à Jour – 11. La moyenne du volume de transaction moyen durant la deuxième période de 2010 à 2011 est inférieure à celle de la première période de 2006 à 2009 (0.358% vs.0.503%) et cette différence est statistiquement significative à 1% avec le t-test. Par conséquent, les investisseurs à court-terme qui achètent des actions avant l'ex-jour trouvent qu'il est plus difficile de les vendre après le jour ex-dividende à la deuxième période. Cela conduit à la transaction anormale positive qui n'est pas significative, baisse considérablement et est inférieure au rendement anormal zéro après l'ex-jour. De plus, le volume de transaction anormal cumulé avant le jour ex-dividende est positif au seuil significatif de 1% et CAV (-1 + 1) est également significativement différent de zéro à la fois dans l'échantillon complet et les deux sous-échantillons. À la période après l'ex-jour, CAV (+1 +6) est positif au seuil significatif de 10% dans l'échantillon complet et CAV (+1 +2) et CAV (+1 +6) sont positifs aux seuils significatifs de 1% et 1-% respectivement dans le premier sous-échantillon. Ces résultats soutiennent l'hypothèse des activités de transaction à court terme autour du jour ex-dividende.

En outre, les résultats de la régression OLS illustrent que le rendement de dividendes est en relation négative avec le rendement anormal à l'ex-jour au seuil significatif de 1% à 5% pour l'échantillon complet et les deux sous-échantillons. Ces résultats sont contraires à la relation positive attendue entre le rendement de dividendes et le rendement anormal le jour ex-dividende sous l'impact de la fiscalité. Conformément au comportement de prix ex-dividende et du volume de transaction, la relation négative significative entre le rendement de dividendes et le rendement anormal implique que les investisseurs qui capturent le dividende sont les traders marginaux à l'ex-jour et le coût de transaction « round trip » α inférieur à 1/2 est cohérent à l'environnement institutionnel du marché boursier Vietnamien. Par ailleurs, conformément à Dasilas et Leventis (2011); Lakonishok et Vermaelen (1986), le volume de transaction anormal à l'ex-jour est significativement associé au rendement anormal à l'ex-jour à 10% et 5% dans les résultats de l'échantillon complet et le premier sous-échantillon respectivement. Ceci est également la preuve pour les activités de transaction à court terme. Lorsque les traders à court terme sont ceux marginaux, ils déterminent le rendement à l'ex-jour et les activités de transaction à court terme qui concentrent à et autour de l'ex-jour. Dans ce cas, le volume de transaction anormal (AV0) plus élevé aboutit à un rendement anormal plus élevé à l'ex-jour.

Ces résultats impliquent que les investisseurs au marché boursier vietnamien sont indifférents à la différence de traitement fiscal entre le gain en capital et le dividende, ils essaient de capturer le dividende s'ils trouvent des opportunités de profit. Par conséquent, les investisseurs achètent des actions le jour cum-dividende et les vendent le jour ex-dividende pour exploiter les opportunités de profit créées par le paiement de dividendes.

Le troisième essai: Les droits des actionnaires, les droits des créanciers et la politique de dividende: Est-ce que la crise financière mondiale importe?

Le troisième essai examine les effets des droits des actionnaires et des créanciers sur la politique de dividende quand les coûts d'agence des actionnaires et des créanciers ont tendance à augmenter. A partir de la relation principal-agent proposée par MC Jensen et Meckling (1976), la théorie de l'agence est développée avec deux types de problèmes d'agence: le problème causé par les conflits parmi les demandeurs de capitaux propres et le problème causé par les conflits entre les demandeurs de capitaux propres et ceux de la dette (Brockman & Unlu, 2009). Par conséquent, il existe deux types de coûts d'agence, y compris les coûts d'agence des actionnaires et les coûts d'agence des créanciers. La Porta et al. (2000) étudient au début la relation entre les coûts d'agence des actionnaires et la politique de dividende au niveau de pays avec deux modèles : le modèle de résultat et le modèle de substitution. Le premier modèle prédit que les coûts d'agence diminuent et plus de dividendes en espèces sont payés quand les droits des actionnaires minoritaires sont renforcés. Dans un autre point de vue, le deuxième modèle argumente que les dividendes sont distribués comme un moyen de réduire les coûts d'agence pour gagner une réputation de traiter les actionnaires minoritaires équitablement; donc la protection des actionnaires minoritaires plus faible cause des ratios de distribution plus élevés. En outre, Brockman et Unlu (2009) argumentent qu'à côté du mécanisme de créer la réputation, les restrictions de dividendes sont également une compensation pour protéger les faibles créanciers grâce aux conventions privées de crédit entre les gestionnaires et les créanciers; par conséquent, l'effet des droits des créanciers sur la politique de dividende suit le modèle de substitution. Les études empiriques trouvent les preuves pour le modèle de résultat sur la base des coûts d'agence d'actionnaires et pour le modèle de remplacement sur la base des coûts d'agence de créanciers (Brockman & Unlu, 2009; Byrne & O'Connor, 2012; La Porta et al., 2000).

Cette étude propose que la crise financière mondiale soit comme un choc exogène afin d'examiner les changements des effets de droits des actionnaires et ceux des créanciers sur la politique de distribution de dividendes. D'une part, une crise financière réduit le rendement

disponible des opportunités d'investissement et les initiés subissent des coûts marginaux plus faibles des ressources détournant de la valeur actuelle nette positive des projets d'investissement. Par conséquent, l'expropriation des actionnaires minoritaires devient plus sévère (Johnson et al., 2000). Lemmon et Lins (2003) qui examinent l'impact de la structure propriétaire sur la valeur de l'entreprise pendant la crise financière asiatique et trouvent que les entreprises où les gestionnaires et leurs familles se séparent de leurs droits de contrôle et de propriété des flux de trésorerie ont les rendements des actions cumulées moins élevés que les autres entreprises. D'autre part, pendant la période après la crise, les entreprises éprouvent les contraintes de financement extérieur. Campello et al. (2010) examinent les directeurs financiers de 1050 entreprises aux États-Unis, en Europe et en Asie au sujet de leurs plans d'investissement au cours de la crise financière mondiale de 2008 et constatent que les entreprises avec plus de contraintes financières ont tendance à planifier des coupes plus profondes des dépenses pour l'emploi de la technologie, et de capitaux. Lorsque les entreprises ne peuvent pas mobiliser des fonds externes, ils ne sont pas prêts à établir une bonne réputation; Par conséquent, les conflits d'agence entre les actionnaires et les créanciers ont tendance à augmenter. En outre, sous l'impact de la crise financière, il y a moins d'opportunités d'investissement rentable et les entreprises dont la rentabilité est inférieure peuvent utiliser des dividendes à établir une bonne réputation pour leurs activités. Cela implique que les entreprises sont moins disposées à répondre à la demande des créanciers pour restreindre les dividendes comme un remplaçant pour les droits des créanciers peu protégés comme suggéré par Brockman et Unlu (2009). Cela conduit aussi à une augmentation des coûts d'agence de la dette. Lorsque les deux types de problèmes d'agence deviennent plus graves, le modèle de résultat basé sur les coûts de l'agence des actionnaires et le modèle de substitution basé sur les coûts d'agence de créanciers sont émis l'hypothèse de devenir moins efficaces pendant la période après la crise que celle avant la crise.

En outre, Shao et al. (2013) continuent à examiner l'impact du pouvoir de l'équilibre entre les demandeurs de capitaux propres et ceux de la dette sur la politique de dividende optimale dans le monde entier avec l'argument que la politique de dividende optimale est obtenue lorsque le coût marginal du capital propre est égal à celui de la dette. Lorsque les droits des créanciers sont plus forts, les entreprises ont plus de discrétion de payer dividendes comme un remplaçant seulement si les droits des actionnaires sont tellement forts que les entreprises sont obligées de restituer des flux de trésorerie libres. De même, lorsque les droits des actionnaires sont améliorées, les entreprises ont tendance à payer plus de dividendes si elles ont la flexibilité de

changer la distribution de dividende grâce à la forte protection de créancier. Avec un échantillon de 139 168 observations de 39 pays de 1991 à 2010, leur recherche empirique montre que le modèle de substitution (modèle de résultat) est plus efficace lorsque les actionnaires minoritaires (créanciers) sont fortement protégés. Dans cet article, nous développons un argument de cette stratégie d'équilibrage sous l'impact de la crise financière mondiale comme suivant: Lorsque les problèmes d'agence deviennent plus sévères, ceteris paribus, les entreprises sont plus probables de diminuer les dividendes payés comme un remplaçant pour les droits des créanciers peu protégés, si les actionnaires minoritaires sont fortement protégés par les règles. Toutefois, si les droits des créanciers sont forts, ceteris paribus, ils ont tendance à diminuer plus de dividendes. En conséquence, nous émettons l'hypothèse que la différence de l'effet des droits des créanciers (des droits des actionnaires) sur la politique de dividende entre les périodes avant et après la crise est plus grande lorsque la protection juridique des actionnaires (des créanciers) est plus forte. Cette étude est menée avec un échantillon de recherche de 104 072 observations de l'entreprise-année à partir de 17 968 entreprises constituées dans 39 pays pendant la période 2003-2012.

Suivons Brockman et Unlu (2009); Shao et al. (2013), nous utilisons deux modèles de régression logit et tobit pour examiner la probabilité de distribution de dividendes et les ratios de distribution avec des variables indépendantes à la fois au niveau de pays et au niveau d'entreprises. Cependant, pour examiner les différences des effets des droits des actionnaires et des créanciers sur la politique de dividende entre les pays pendant la période avant la crise de 2003 à 2007 et la période après crise de 2008 à 2012, nous ajoutons les termes interactifs entre chaque variable indépendante avec la variable muette de période (PER) pour les deux modèles de régression. La variable muette de période prend la valeur de 1 pour la période après la crise et 0 autrement. Si les effets de la protection de l'actionnaire et créancier sur la politique de dividende sont identiques entre les deux périodes, les coefficients de leurs termes interactifs sont statistiquement insignifiants. Les variables au niveau d'entreprise dans cette recherche se trouvent à influer sur la politique de dividende de l'entreprise dans nombreuses études antérieures (Brockman & Unlu, 2009; DeAngelo et al, 2006; Eugene F. Fama et français, 2001; Shao et al, 2013..): (1) la rentabilité (PRO) est le résultat net divisé par l'actif total, (2) des encaisses (CAS) sont mesurées par le solde de trésorerie divisé par l'actif total, (3) la croissance de l'entreprise (GRO) est le ratio du changement de l'actif total de l'année en cours, (4) Le ratio de la dette (DEB) est le ratio de la dette à long terme sur l'actif total, (5) l'actif tangible (TAN) est l'immobilisation corporelle nette échelonnée par l'actif total, (6) la taille de l'entreprise

(SIZ) est le logarithme naturel de l'actif total mesuré en dollars américains, et (7) la maturité de l'entreprise (RET) est les bénéfices non distribués divisés par l'actif. Les variables au niveau de pays comprennent des indices de droits des actionnaires, droits des créanciers et la variable muette de l'origine de légale. Les droits des actionnaires sont estimés par l'indice « anti les opérations entre les inities » (Anti self-dealing, ASD) de Djankov et al. (2008). L'indice ASD est mesurée par la première composante principale de facteurs concentrés sur la force de protection des actionnaires minoritaires contre les opérations des actionnaires majoritaires (i.e. la divulgation, l'approbation et le contentieux); par conséquent, il représente la pression sur les initiés de restituer l'argent (Shao et al., 2013). Les droits des créanciers sont estimés par le score du total du droit de créancier révisé (CRE) de Djankov et al. (2007). La variable muette de l'origine légale (LAW) prend 1 pour les pays de droit civil et 0 pour les pays de droit commun.

En outre, afin d'examiner les différences des effets des droits des créanciers (des actionnaires) sur la politique de dividende entre les périodes avant et après la crise par le niveau de droits des actionnaires (des créanciers), comme Shao et al. (2013), Nous reproduisons les modèles de régression sans variable muette de l'origine légale et son interactif pour deux couples de sous-échantillons: (1) la faible protection des actionnaires et la forte protection des actionnaires; (2) la faible protection des créanciers et la forte protection des créanciers et comparons les coefficients des termes interactifs dans chaque couple. Les pays ayant des indices de protection des actionnaires inférieures ou égales à la médiane ont la faible protection des actionnaires, les autres ont la forte protection des actionnaires. Les pays ayant des indices de protection les créanciers inférieurs à la médiane ont la faible protection des actionnaires, les autres ont la forte protection des créanciers.

Tous les modèles de régression comprennent les variables muettes de l'industrie, les termes interactifs entre chaque variable muette de l'industrie et la variable muette de la période de crise afin de contrôler les effets de l'industrie. Ils sont également regroupés par la firme pour contrôler la corrélation des résiduels à l'intérieur de l'entreprise. Les signes attendus des variables spécifiques de l'entreprise sont comme suivants: PRO (+), CAS (+/-), GRO (-), DEB (+/-), TAN (+), SIZ (+) et RET (+). Dividendes aux ventes (DSA) et toutes les variables au niveau de l'entreprise sont winsorisées à 5%.

Les résultats de la régression de l'échantillon indiquent qu'après l'effet de la crise financière mondiale qui est contrôlée par la variable muette de la période de crise et les termes interactifs, l'indice ASD et CRE sont en relation positive avec à la fois la probabilité de distribution de

dividendes et le montant de dividendes dans tous les pays. Cela implique que s'il n'y a pas de choc exogène, les initiés sont plus probables de payer dividendes et de payer plus dividendes lorsque les droits des actionnaires et des créanciers sont plus forts. Conformément à Brockman et Unlu (2009), ces résultats confirment le modèle de résultat pour les coûts d'agence de capitaux propres (les droits des actionnaires plus forts pressent les initiés à payer plus dividendes) et le modèle de substitution pour les coûts d'agence de la dette (les entreprises paient moins dividendes car les droits des créanciers sont plus faibles pour gagner une réputation de traitement équitable et de répondre à la demande des créanciers pour restreindre les dividendes). Les termes interactifs entre la variable muette de la période de crise (i.e. elle est 1 pour la période après la crise et 0 sinon) et les deux indices représentant les droits des actionnaires et les droits des créanciers sont négativement liés à la politique de dividendes dans tous les résultats de la régression. Ces résultats indiquent que les effets des droits des actionnaires et des créanciers sur les décisions de dividendes des sociétés dans la période avant la crise sont significativement plus forts que dans la période après la crise. Par conséquent, nous acceptons l'hypothèse que, sous l'impact de la crise financière, le modèle de résultats basé sur les coûts de l'agence de capitaux propres et le modèle de substitution basé sur les coûts d'agence de la dette deviennent également moins efficaces.

Shao et al. (2013) constatent que la pertinence du modèle de substitution de coûts d'agence de la dette compte sur la qualité de la protection des actionnaires. Par conséquent, nous examinons comment les droits des actionnaires affectent les différences des effets des droits des créanciers sur la politique de dividende entre les périodes avant et après la crise. Les pays dans l'échantillon complet sont classés en deux groupes, y compris la faible protection des actionnaires (l'indice ASD est inférieur ou égal à la médiane de l'échantillon de 0,45) et la forte protection des actionnaires (l'indice ASD est supérieur à 0,45). Les effets des droits des créanciers sur la politique de dividende entre les périodes avant et après la crise selon le niveau des droits des actionnaires. Les deux modèles de régression logit et tobit résultent les coefficients de l'indice CRE dans le sous-échantillon de la forte protection des actionnaires tandis que les coefficients correspondants du groupe de la faible protection des actionnaires ne sont pas significatifs. Ces résultats sont en ligne avec Shao et al. (2013), le modèle de substitution sur la base des coûts d'agence de la dette est plus efficace lorsque les actionnaires sont suffisamment protégés. Remarquablement, les termes interactifs entre l'indice CRE et la variable muette de la période de crise dans le groupe de la forte protection des actionnaires sont à la fois statistiquement et économiquement plus importants que dans le groupe de la faible

protection des actionnaires. Bien que l'expropriation de l'actionnaire minoritaire devienne plus sévère sous l'impact de la crise financière mondiale, les initiés ne peuvent pas exproprier des actionnaires minoritaires facilement lorsque les actionnaires minoritaires sont fortement protégés par les lois. Par conséquent, les initiés dans les pays où la protection des actionnaires est plus forte tendent à réduire plus dividendes comme un remplaçant à la faiblesse des droits des créanciers que ceux dans les pays où la protection des actionnaires est faible.

En outre, nous comparons comment les droits des créanciers affectent les différences des effets de droits des actionnaires sur la politique de dividende entre les périodes avant et après crise. Les pays avec l'indice CRE inférieur à la valeur médiane de 2 appartiennent au groupe de la faible protection des créanciers et ceux avec l'indice CRE de 2 à 4 appartiennent au groupe de la forte protection des créanciers. Les différences des effets de droits des actionnaires sur la politique de dividende entre les périodes avant et après la crise par niveau de droits des créanciers. En accord avec Shao et al. (2013), les résultats de la régression montrent que le modèle de substitution sur la base des coûts d'agence de capitaux propres est plus efficace lorsque les créanciers sont fortement protégés. Les coefficients de l'indice ASD dans les résultats de la régression du groupe de la forte protection des créanciers sont significativement positifs tandis que ceux du groupe de la faible protection des créanciers sont significativement négatifs. En outre, les termes interactifs entre la protection des actionnaires et la variable muette de la période de crise dans le groupe de la forte protection contre les créanciers sont statistiquement négatifs tandis que du groupe de la faible protection des créanciers ne sont pas statistiquement significatifs. Ces résultats ne sont pas qualitativement contre notre hypothèse. Lorsque les entreprises sont contraintes financières sous l'impact de la crise financière mondiale, les initiés sont moins probables de réduire le paiement de dividendes si les créanciers sont fortement protégés, donc ils ont tendance à exproprier plus des actionnaires minoritaires.

Ces résultats impliquent que lorsque les deux types de coûts d'agence: (1) les actionnaires et les créanciers sont plus expropriés; (2) l'augmentation de l'expropriation des créanciers (actionnaires) est plus élevée si les actionnaires (les créanciers) sont protégés par la loi fortement.

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TROIS ESSAIS DE LA POLITIQUE DE DISTRIBUTION DE DIVIDENDES

Résumé ***(1500 caractères max.)***
La première rédaction enquête sur la politique de dividende récemment établie sur le marché boursier vietnamien et expérimente les périodes condensées de forte croissance et chute brutale avec une approche en deux étapes. Les résultats de la recherche montrent : (1) Les investisseurs sont d'avantage expropriés dans les entreprises dont la part de détention d'actions des initiés est plus élevée ; (2) Les investisseurs tendent à percevoir le versement de plus faibles dividendes comme un signal relatif à la rentabilité espérée dès lors que l'asymétrie d'information est réduite ; (3) Les investisseurs dans les entreprises contrôlées par l'Etat sont plus enclins à recevoir des dividendes que celles qui ne le sont pas. La seconde rédaction pose que le marché vietnamien des actions est un laboratoire prometteur pour enquêter sur le comportement des cours de marché le jour du Ex-dividende. Les résultats des recherches suggèrent que les investisseurs du marché boursier vietnamien sont indifférents à l'écart dans l'application de taxe sur les revenus des dividendes. Ils cherchent à capter des dividendes s'ils trouvent des opportunités de profit. Par conséquent, les investisseurs achètent des actions le jour du Cum-dividende et les vendent le Ex-dividende pour exploiter les opportunités de profit générées par le paiement de dividendes. La dernière rédaction examine les effets des droits des actionnaires et des créanciers sur la politique de dividende lorsque les frais de représentation des actionnaires et des créances tendent à augmenter. Ses découvertes indiquent que les actionnaires et les créanciers sont plus souvent expropriés et l'augmentation des expropriations des créanciers (actionnaires) est plus élevée si les actionnaires (créanciers) sont fortement protégées par la réglementation.

Mots clefs français: politique de dividende, Heckman, ex-dividende, cours boursier, droits des créanciers, droits des actionnaires, crise financière

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Three essays on dividend policy

Abstract
The first essay investigates dividend policy in Vietnamese stock market which is newly established and experiences short booming and crashing periods with a two-step approach. The research findings show: (1) investors are expropriated more in firms with higher insider ownership; (2) Investors tend to receive smaller dividends paid as a signal of expected profitability when information asymmetry is lower; (3) investors in state-controlled firms are more likely to receive dividends than those in non-state-controlled firms. The second essay posits that Vietnamese stock market is a promising laboratory to investigate stock price behavior on ex-dividend day. The research results imply that investors in Vietnamese stock market is indifferent to the difference in tax treatment of capital gains to dividends, they try to capture dividends if they find profit opportunities. Therefore, investors buy stocks on the cum-dividend day and sell them on the ex-dividend to exploit profit opportunities created by dividend payment. The third essay examines the effects of shareholder rights and creditor rights on dividend policy when agency costs of shareholders and creditors tend to increase. Its findings indicate that are more expropriated and the increase in the expropriation of creditors (shareholders) is higher if shareholders (creditors) are protected strongly by law.

Keywords: dividend policy, Heckman, ex-dividend, stock price, creditor rights, shareholder rights, financial crisis.

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